Sectt. II-27—101,000—4-11-49.

(195) Department.

SERIES. (1) (140)

G.O. NO. 1554 Edn

Dated 19-5-50

[Despatch Abstract.]

CT VII 1 (N)

No.F.1-11/49-T.2.
Government of India.
MINISTRY OF EDUCATION.

28 DEC 1949

New Delhi 3, the 20th December, 1949.

10488

S&P.4

I doubt Very much whether Govt would go so & have the Budget & PC meeting. Can we not depute the DPI or Jt. S. & PC

KM
25/12

Dear Sir,

The lack of agreement on the question of representation on the Co-ordinating Committee on behalf of the Provinces and States of the Southern Region was reported to the Chairman of the All India Council for Technical Educat on, who has instructed me to extend invitations to both the representatives of the Southern Region to attend the forthcoming meeting of the Co-ordinating Committee to be held at Calcutta on the 12th January 1950 as special invitees. The Chairman proposes to settle the question at the meeting itself.

I am to request you to make it convenient to attend the meeting of the Co-ordinating Committee. The agenda and other connected papers for the meeting are forwarded herewith.

Yours truly,

G.K. Chandramani
20.12.49

(G.K.Chandiramani)
Secretary,
All India Council for Technical Education.

The Hon'ble Minister for Education,
Madras.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

Eighth Meeting.

Place : Calcutta. Date: 12th January, '50.

Agenda

1. To report that the proceedings of the seventh meeting of the Co-ordinating Committee held at Calcutta on the 12th April 1949 1949 have been confirmed by circulation to members.

2. To receive a report on the action taken by the Government of India on the various recommendations made by the Co-ordinating Committee.

Annexure 1.

3. Scheme for the strengthening of Engineering and Technological Institutions :-

(a) To receive a note on the progress of the scheme.

Annexure 2.

(b) To consider the extension of the scheme to cover the capital expenditure for the Department of Textile Technology, Alagarra Chettiar College of Technology.

Annexure 3.

(c) To consider proposals regarding Selection Committees for appointment of staff in non-University institutions.

Annexure 4.

(d) To consider the request of the Annamalai University for waiving of condition regarding its contribution towards the development of Engineering College.

Annexure 5.

(e) To consider following issues arising out of conditions governing grants.

(i) Appointment of Visiting Committees or Inspectors for non-University Institutions.

Annexure 6.

(ii) Fixation of quota of seats in Institutions.

Annexure 7.

4. To consider whether recommendations should be made to the Central Government for giving grants to new non-government Engineering and Technological Institutions.

Annexure 8.

5.

5. To consider letter No.4385/5298/CXX1, dated the 29th September, 1949, from the Government of the Central Provinces and Berar, requesting for financial assistance for the Government Engineering College, Jubbulpore.

Annexure 9.

6. To recommend suitable salary scales for instructional staff of Engineering and Technological Institutions.

Annexure 10.

7. <u>All-India Boards of Technical Studies</u> :

(a) To receive a review of the activities of the All-India Boards of Technical Studies.

Annexure 11.

(b) To consider the following arising out of the activities of the Boards :

(i) New Schemes of Training in Chemical Engineering and Chemical Technology.

Annexure 12.

(ii) Syllabus for All-India Diploma in Architecture, (Post-Intermediate Standard) and the consequential changes in the scheme of Examinations.

Annexure 13.

(iii) Revision of the rules for the conduct of Architectural Examinations.

Annexure 14.

(iv) Revision of the scheme of All-India Diploma Examinations.

Annexure 15.

(v) Revision of scales of remunerations for examiners and moderators.

Annexure 16.

(vi) Training of C.P.W.D. employees on part-time basis.

Annexure 17.

8. To consider suitable abbreviations for All-India Diplomas and Certificates.

Annexure 18.

9. To consider a representation regarding recognition of the Diploma of Government Textile Institute, Kanpur.

Annexure 19.

10. To consider a report on the activities of the Joint Committee of All India Council for Technical Education and Inter-University Board.

Annexure 20.

11. To consider the question of training in Industrial Safety Engineering.

Annexure 21.

12. To nominate a rerresentative of the All India Council for Technical Education on the Standing Advisory Committee of the Department of Power Engineering, Indian Institute of Science, Bangalore.

Annexure 22.

13. To consider a letter from Mr. B.B. Joshi, a member of the All India Council for Technical Education, regarding 'Training within Industry in India'.

Annexure 23.

14. <u>Miscellaneous</u> :

(a) To report the following new appointments -

(i) For the Governing body of the College of Engineering, and Technology, Jadavpur -

Dr. S.R.Sen Gupta,
Principal, Bengal Engineering College, Howrah.

Mr. P.N. Sinha of Birla Bros.,Ltd.,
Calcutta.

(ii) for the Governing Body of the Victoria Jubilee Technical Institute, Bombay -

Dr. Mata Prasad,
Principal, Royal Institute of Science,
Bombay.

Mr. C.M. Master, Architect, Bombay.

(iii) for the All India Boards of Technical Studies in Engineering and Metallurgy, Chemical Engineering and Chemical Technology, and Architecture and Regional Planning -

Dr. S.R. Sen Gupta,
Principal, Bengal Engineering College,
Howrah.
(as additional member)

15. Any other business:-

(a) (i) To approve scheme of Examination for the All India Diploma in Electrical Engineering

p.t.o.

framed in accordance with new syllabus.

Annexure 24.

(a)(ii) To reconsider the functions of the Regional Committees vis-a-vis All India Boards of Technical Studies in respect of Examinations.

Annexure 25.

(a)(iii) To appoint representatives of the All India Council for Technical Education on All India Boards of Technical Studies.

Annexure 26.

Annexure 1.
Item No. 2 of Agenda

Eighth Meeting.

Co-ordinating Committee of the
All India Council for Technical Education

Report on the action taken by the Government of India on the various recommendations of the Co-ordinating Committee.

1. Membership of the Council.

It was reported to the All India Council for Technical Education at its meeting held on the 28th April, 1949 that the Government of India Resolution No. F. 16-10/44-E III, dated the 30th November, 1945 establishing the All India Council for Technical Education was amended by Resolution No. F. 1-15/48 T-2 dated the 10th March, 1949 specifying the date from which the tenure of office of non-official members of the Council was to be reckoned. Subsequently, however, it was observed that the amendment was somewhat ambiguous. The original Resolution of the 30th November, 1945 was therefore further amended to state clearly the date from which the tenure of office of non-official members of the first and subsequent Councils was to be reckoned.

At its meeting held on the 28th April, 1949 the All India Council for Technical Education considered the question of giving enhanced representation to the Indian National Trade Union Congress, and the Chairman assured that the claims of that organisation for greater representation would be given due consideration. After careful examination, the number of seats allotted to that organisation has been raised from one to three. Clauses to cover this and other monor changes have been incorporated in the amending resolution referred to in para 1 above. A copy of the amending resolution and a comrlete list of members of the All India Council

for Technical Education are appended hereto (Appendix A & B).

11. Membership of the Co-ordinating Committee.

In pursuance of the resolution passed by the All India Council for Technical Education at its first meeting held in April/May 1946 on the constitution and functions of the Co-ordinating Committee the term of office of all members of the Co-ordinating Committee except of ex-officio members expired on the 30th June, 1949. The Committee has accordingly been reconstituted in so far as these members are concerned except for the representative of the Provincial and State Governments of the Southern Region. A list of members of the Co-ordinating Committee so far finalised is appended hereto. (Appendix C.)

111. Committees of the Council.

All India Boards of Technical Studies

A note on the activities of the All India Boards of Technical Studies is submitted separately (Annexure 11.)

Regional Committees.

As a first step towards the establishment of the Regional Committees, two Regional Officers have been appointed and steps are being taken for their office accommodation at Bombay and Calcutta.

IV. Higher Technical Institutions:

The work of renovation of buildings at Hijli for the Eastern Higher Technical Institution is in progress, and plans for new buildings have also been drawn up.

The Federal Public Service Commission having expressed their inability to recommend any suitable candidate for the posts of Heads of Departments of the Eastern Higher Technical Institution, a Selection Committee was constituted in September, 1949 to interview suitable candidates in U.K. and on the Continent. The Committee concluded its labours in October, 1949 and it is expected that the selected candidates will join their duties in February 1950.

A considerable amount of equipment has been obtained from the German Reparation Stock and from the Surplus Stores with the Director General of Disposals.

V. Grants to existing engineering and technological institutions.

A note on the progress made in regard to the scheme for strengthening the existing engineering and technological institutions has been submitted separately (Annexure 2, Item No. 3 (a) of agenda)

VI. Miscellaneous

a) Joint Committee of the All India Council for Technical Education and I.U. Board.

A separate note has been submitted on the activities of the Joint Committee (Annexure 20).

PCS.

Appendix A 9 (1)

No. F.1-15/48.T.2.
Government of India,
Ministry of Education,
New Delhi 3, the 29th July, 1949.

R E S O L U T I O N.

The following amendments are made in the Resolution of the Government of India in the late Department of Education (now Ministry of Education) No. F.16-10/44-E.III, dated the 30th November, 1945, as subsequently amended upto the 10th March, 1949.

In the said Resolution:-

i) For paragraph 3(i) (c) the following shall be substituted, namely:-

"c) Such number of representatives of such of the Ministries and Departments of the Government of India as the Central Government may from time to time, determine."

ii) In paragraph 3(i)(g)
(a) for the word "Fourteen" the word "Sixteen" shall be substituted

(b) for the words "Indian Federation of Labour" the following words "Hind Mazdoor Sabha" shall be substituted.

iii) In paragraph 3(i) (n) the word "Series" shall be inserted after the words "National Planning".

iv) For paragraph 3(ii), the following shall be substituted, namely

" (ii) Term of Office - The term of office of all non-official members (including the Chairman) who were first elected or nominated to the Council shall be 3 years reckoned from the first day of the first meeting of the Council, namely, the 30th April, 1946; and the term of office of all non-official members subsequently elected or nominated shall be 3 years reckoned from the appropriate anniversary of that day; provided that a member elected or nominated under sub-clauses (d) (h) and (i) above shall cease to be a member of the Council if he ceases to be a member of the Central Legislature, the Central Advisory Board of Education, or the Inter-University Board of India as the case may be. The official members of the Council will continue until they are replaced by others. All casual vacancies among the members (other than ex-officio members) shall be filled by the authority or body who nominated or elected the member whose place becomes vacant, and the person appointed to a casual vacancy shall be a member of the Council for the residue of the term for which the person whose place he fills would have been a member.

v) After paragraph 3, the following shall be added as paragraph 4.

"4. No proceedings of the Council shall be invalidated merely by reason of the existence of a vacancy or vacancies among the members."

vi) The existing paragraphs 4 and 5 shall be renumbered 5 and 6.

Ordered that a copy of this Resolution be communicated to all Provincial Governments and Minor Administrations and all Ministries of the Government of India.

2..... P.T.O.

2. Ordered that the Resolution be published in the Gazette of India for information.

Secretary to the Government
of India,
Ministry of Education.

To

The Publisher,
Gazette of India,
N E W D E L H I.

Copy forwarded to:-

1. All members of the All-India Council for Technical Education.
2. The Secretary, Cabinet Secretariat.
3. The following institutions:

i) The Secretary,
Hind Mazdoor Sabha,
Mumbai Marathi Grantha Sangrahalaya,
Bai Jivaji Lane, Thakurdwar, Bombay - 2.

ii) The Secretary,
All-India Railwaymen's Federation, Mylapore, Madras.

iii) The Secretary, The Institutions of Engineer (India) P.O.Box No. 669, Calcutta.

iv) The Secretary,
All India Organisation of Industrial Employers,
28, Feroze Shah Road, New Delhi.

v) The Secretary,
Associated Chambers of Commerce and Industry,
2, Netaji Subhash Road, Calcutta.

vi) The Secretary,
The Employer's Federation of India,
Patel House, Churchgate Street, Bombay.

vii) The Secretary,
The Federation of Indian Chambers of Commerce and Industry,
28, Ferozshah Road, New Delhi.

viii) The Secretary,
All-India Trade Union Congress, Model House,
Proctor Road, Girgaum, Bombay.

ix) The Secretary, Inter-University Board of India,
No. 10 A Cavalry Lines, Delhi.

x) The Secretary, Association of the Principals of Technical Institutions in India, Delhi Polytechnic, Delhi.

xi) The Secretary, Indian Institute of Architects,
Hornby Road, Bombay.

xii) The Secretary, National Planning Series Committee,
University Buildings, Fort, Bombay.

xiii) The Secretary, Indian National Trade Union Congress,
Mazdoor Manzil, Bombay.

By order,

for Secretary.

Gazette) 22.7.1949.

APPENDIX 'B'

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.
List of members.

Chairman.	1. Mr. N.R. Sarker, 'Ranjani' 237, Lower Circular Road, Calcutta.
Educational Adviser to the Government of India.	2. Dr. Tara Chand, M.A., D. Phil., Educational Adviser to the Government of India, Ministry of Education, New Delhi.
Ministries of the Government of India:	**Representatives:**
Ministry of Agriculture.	3. Professor J.N. Mukerjee, Director, Indian Agricultural Research Institute, New Delhi.
Ministry of Commerce.	4. Mr. K.K. Chettur, M.A., Joint Secretary, Ministry of Commerce, New Delhi.
Council of Scientific and Industrial Research.	5. Dr. S.S. Bhatnagar, D.Sc., F.R.S., Director, Council of Scientific and Industrial Research, New Delhi.
Ministry of Finance.	6. Joint Secretary (G) Ministry of Finance, New Delhi.
Ministry of Health.	7. Mr. P.M. Menon, I.C.S., Joint Secretary, Ministry of Health, New Delhi.
Ministry of Industry & Supply.	8. Mr. K. Sen, I.C.S., Joint Secretary, Ministry of Industry & Supply, New Delhi.
	9. Dr. J.N. Ray, Deputy Director General (Development), D.G., I. & S., New Delhi.
Ministry of Labour.	10. Mr. S.Lall, I.C.S., Secretary, Ministry of Labour, New Delhi.
Ministry of Communications.	11. Mr. T.P.Bhalla, Director General of Civil Aviation , New Delhi.
Ministry of Railways.	12. Mr. F.C. Badhwar, Member, Railway Board.
Ministry of Defence.	13. Secretary, Ministry of Defence, New Delhi.
Ministry of Works, Mines & Power.	14. Mr. M.P.Pai , I.C.S., Joint Secretary, Ministry of Works, Mines and Power, New Delhi.
Ministry of Transport.	15. Consulting Engineer to the Government of India (Roads) Ministry of Transport New Delhi.
Cabinet Secretariat.	16. Representative of the Cabinet Secretariat New Delhi.
Central Board of Irrigation.	17. Mr. A.N. Khosla, I.S.E., President, Central Board of Irrigation, c/o Secy. / Central Board of Irrigation, Kennedy House, Simla S.W.
Constituent Assembly of India (Legislative)	18 Nawab Muhammad Ismail Khan, 210-A, Sadar Bazar, Mustafa Castle, Meerut.
	19. Dr. Panjabrao Shamrao Deshmukh, Amraoti.

20. Shri Biswanath Das, Hospital Road, Berhampore, District Ganjam, B.N.Railway, Orissa.

21. Pandit Lakshmi Kanta Mitra.

22. Prof. Yashwant Rai, C/o Shri Prithvi Singh Azad, M.L.A., P.O. Nayashar Tehsil Kherar, Distt. Ambala.

PROVINCIAL GOVERNMENTS:

Government of Madras. 23. H.M.Education, Madras.

Government of Bombay. 24. Joint Director of Technical Education, Bombay.

Government of West Bengal. 25. The Hon'ble Minister for Education, West Bengal or his nominee.

Government of Bihar. 26. The Director of Industries, Bihar.

Government of Assam. 27. Hon'ble the Premier of Assam.

Government of Orissa. 28. Shri Bijayanand Patnaik, M.L.A., Cuttack.

Government of East Punjab. 29. Hon'ble Minister for Industries, East Punjab.

Government of United Provinces. 30. The Hon'ble Minister of Industries, United Provinces, or representative.

Government of Central Provinces. 31. Dr. V.S. Jha, Secretary, Department of Education, C.P.& Berar, Nagpur.

INDIAN STATES.

Mysore State 32. The Minister for Education, Mysore.

Saurashtra Union. 33. Shri Naresh Chandra Chakarvarty, M.Sc., D.I.I.Sc., A.M.I.E., Principal, Technical Institute, Morvi.

Madhya Bharat Union 34. Shri Bhaironath Jha, Director of Education, Madhya Bharat, Indore.

Rajasthan Union. 35. The Principal, Engineering College, Pillani.

Jammu and Kashmir State 36. The Director of Education, Jammu and Kashmir, Shrinagar.

Industry, Commerce & Labour.

Associated Chambers of Commerce of India, Calcutta. 37. Mr. J.A. Murray, C/o Jardine Skinner & Co., Calcutta.

38. Mr. T.G. May, C/o The General Electric Company (India), Bombay.

All India Organisation of Industrial Employers, New Delhi. 39. Mr. P.N.Sinha, C/o M/s. Birla Bros., Ltd. 8, Royal Exchange Place, Calcutta.

40. Mr. B.B. Joshi, C/o Federation of Baroda State Mills and Industries, Baroda.

Federation of Indian Chambers of Commerce and Industry, New Delhi. 41. Prof. M.P. Gandhi, M.A.F.R., E.S., J.P., C/o Gandhi and Company Jan Mansion, Sir Pherozshah Mehta Road, Fort, Bombay.

42. Mr. K.C. Munshaw, C/o Shri Ram Krishna Mills, Co., Railwaypura, Ahmedabad.

Indian National Trade Union Congress. 43. Shri Harihar Nath Shastri, Kanpur.

44. Mr. Noor Mohammed Shaikh, Secretary, Textile Labour Association, Gandhi Majoor Savalay, Ahmedabad.

45. Shri Nirmal Kumar Sen, C/o B.P.N.T.U.C., 115/2, Dharmtolla St., Calcutta.

Employers' Federation of India, Bombay. 46. Mr. G.V. Apte, Superintendent of Training, The Tata Iron and Steel Co., Ltd., Jamshedpur, (Via Tatanagar).

47. Dr. K. Venkataraman, D.Sc., Director, Department of Chemical Technology, Bombay University, Matunga, Bombay.

All India Trade Union Congress. 48. Mr. V.Chakkarai Chettair, Vice-President, A.I.T.U.C., Sarafali Mansion, Broadway, Madras. G.T.

49.

The Hind Mazdoor Sabha. 50. Miss Maniben Kara, 7 Huges Road, Cumbala Hills, Bombay.

51. Mr. J.N. Mitra, 22-B, Southern Avenue, Kalighat, Calcutta.

All India Railwaymen's Federation. 52. Mr. S.Guruswami, General Secretary, All India Railwaymen's Federation, Mylapore, Madras.

Central Advisory Board of Education: 53. Dr. Mata Prasad, Principal, Royal Institute of Science, Bombay.

54. Sai B.H. Zaidi, [illegible], Chief Minister, Rampur State, Rampur.

Inter University Board (India). 55. Dr. A.L. Mudalier, Vice-Chancellor, Madras University, Madras.

56. Pandit Govind Malaviya, Vice-Chancellor, Banaras Hindu University, Banaras.

Association of Principals of Technical Institutions (India) 57. Dr. S.R.Sen Gupta, B.Sc. (Glas.)Ph.D. (Glas), Principal, Bengal Engineering College, Sibpore, Howrah.

58. Mr. P.N. Joshi, Principal, Victoria Jubilee Technical Institute, Matunga, Bombay.

Institution of Engineers (India) 59. Dr. Shiv Narayan, Sc., D., 978, Naiwara, Delhi.

60. Mr. N.K. Mitra, 16, Hindusthan Road, Rash Behari Avenue, Calcutta.

Indian Institute of Architects.	61.	Mr. C.M. Master, 34-38 Hammam Street, Fort, Bombay.
National Planning Series Committee.	62.	Prof. K.T. Shah, Secretary, National Planning Series Committee, Bombay.
	63.	Dr. J.C.Ghosh, Director General of Industry & Supply, New Delhi.
Indian Chemical Society. Calcutta.	64.	Dr. P.C.Mitter, M.A., Ph. D. (Berlin), F.N.I., Calcutta.
Nominees of the Government of India.	65.	Sir Fazal Ibrahim Rahimtoola, Ismail Building, Hornby Road, Bombay.
	66.	Dr. C.H. Pandya, Sc. D., 'Kumkum' 50-A, Pedder Road, Bombay.
Secretary:		Mr. G.K.Chandiramani, B.E., A.M.I.E., Deputy Educational Adviser to the Government of India (Technical), Ministry of Education, New Delhi.

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APPENDIX C

LIST OF MEMBERS OF THE CO-ORDINATING COMMITTEE OF THE ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

1.	Mr. N.R. Sarker, 237, Lower Circular Road, Calcutta	(Chairman)
2.	Dr. Tara Chand, M.A., D. Phil., Educational Adviser to the Govt. of India	(Ex-Officio)
3.	Mr. V. Narahari Rao, I.C.S., Chairman of the All India Board of Technical Studies in Commerce and Business Administration Auditor General of India, Simla.	(Ex-officio)
4.	Dr. H.L. Roy, Chairman of the All India Board of Technical Studies in Chemical Engineering and Chemical Technology, C/o College of Engineering and Technology Jadavpur, 24 Paragana (West Bengal)	(Ex-officio)
	Mr. N.K. Mitra, Chairman of the All India Board of Technical Studies in Engineering and Metallurgy, 16, Hindusthan Road, Rashbehari Avenue, Calcutta.	(Ex-officio)
6.	Mr. V.N. Chandavarkar, Chairman of the All India Board of Technical Studies in Textile Technology, c/o N. Sirur and Co., Ltd., 70 Forbes Street, Fort Bombay	(Ex-officio)
7.	Mr. C.Master, Chairman of the All India Board of Technical Studies in Architecture and Regional Planning, 34-38 Hammam street, Fort Bombay	(Ex-officio)
8.	Mr. Rathindra Nath Tagore, Chairman of the All India Board of Technical Studies in Applied Art, Shantiniketan, West Bengal.	(Ex-officio)
9.	Mr. A. N. Khosla, Chairman of the Central Water Power, Irrigation & Navigation Commission, Curzon Road, New Delhi.	(Government of India)
10.	Dr. P.S.Deshmukh, M.C.A. Amraoti.	(Central Legislature)
11.	Joint Director of Technical Education, Bombay Province, Bombay	(Representative of Provincial & State Governments of the Western Region)
12.		(Representative of Provl. and state Govts. of the Southern Region)
13.	Hon'ble Minister of Education, West Bengal, Calcutta.	(Representative of Provl. & State Govts. of the Eastern Region).
14.	Principal, Engineering College, Pilani. (Rajasthan)	(Representative of Provl. & State Govts. of the Northern Region)

15. Mr. M.P. Gandhi,
C/o Gandhi and Company,
Jan Mansion, Sir P. Mehta Road,
Fort, Bombay. (Employers)

16. Miss Maniben Kara,
Huges Road, Cumbala Hills,
Bombay (Employees)

17. Pandit Govind Malaviya,
Vice-Chancellor Banaras Hindu
University, Banaras (Central Advisory Board of Education and Inter University Board)

18. Dr. S.N. Sen Gupta, B.Sc. (Glas),
Ph. D. (Glas.)
Principal, Bengal Engg. College,
Sibpure, Howrah. (Professional Associations)

19. Dr. A.H. Pandya,
'Kumkum'
50-A, Pedder Road, Bombay (Nominee of the Chairman)

20. Dr. J.C.Ghosh, D.Sc.,F.N.I.,
Director General of Industry & Supply,
New Delhi. (Nominee of the Chairman).

Secretary: Mr. G.K.Chandiramani, B.E. (M.I.E.)
Deputy Educational Adviser to the
Government of India, Ministry of
Education, New Delhi.

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17

Annexure 2 EIGHTH MEETING.
Item No. 3(a) of Agenda.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

Note on Progress of the scheme for strengthening of existing Technological Institutions.
=======

It was reported at the last meeting of the Co-ordinating Committee that during 1947-48 and 1948-49 nine out of the fourteen institutions recommended by the All India Council for Technical Education for grants and loans from Central Revenues, had received such grants and loans and that cases of the remaining five institutions viz. the College of Engineering and Technology, Muslim University Aligarh, the Technical College Dayalbagh, Agra, the Department of Chemical Technology, Bombay University, the College of Technology Banaras Hindu University, and the College of Engineering, Annamalai University, were under consideration of Government. The present position regarding these five institutions is as follows:-

i) College of Engineering & Technology, Muslim University, Aligarh. It has been decided to give altogether the following grants towards the implementing of the plan of development of this College, without calling upon the University to raise funds from other sources to meet atleast 1/3rd of the total capital and recurring cost of development as recommended by the Council:-

a) Capital Grant

i) For College Building. Rs.4,69,000

ii) For Equipment. Rs.10,80,000

b) Ultimate recurring grant Rs. 2,42,000

For the year 1949-50, the following grants have been sanctioned subject to the usual conditions:-

Capital Grant

i) For buildings Rs. 1,56,000

ii) For equipment Rs. 54,000

Recurring grant Rs. 48,000

ii) Technical College, Dayalbagh (Agra). It has been decided to give altogether the following grants and loan towards the implementing of the plan of development of this college, subject to the institution raising funds from other sources to meet atleast 1/3rd of the total capital and recurring cost of development.

a) Capital grant

i)	For College buildings.	Rs. 3,12,000
ii)	For equipment.	Rs. 7,24,000
b)	Ultimate recurring grant	Rs. 1,16,000
c)	Interest free loan for construction of hostels repayable in 33 instalments.	Rs. 2,10,000

For the year 1949-50 the following grants etc. have been sanctioned subject to the usual conditions:-

Capital grant

i)	For buildings	Rs. 62,000
ii)	For equipment	Rs. 36,000
	Recurring grant	Rs. 23,000
	Interest free loan for construction of hostel	Rs. 42,000

iii) Department of Chemical Technology, University of Bombay.

Subject to acceptance of the conditions laid down by the All India Council for Technical Education it has been decided to give altogether the following grants towards the implementing of the plan of development of the Chemical Technology Department of the University of Bombay.

Capital grant

a)	For College buildings.	Rs. 4,00,000
b)	For equipment	Rs. 5,60,000
	Ultimate recurring grant	Rs. 1,00,000

The University of Bombay has not yet signified its acceptance of the above mentioned grant-in aid and the conditions attaching thereto.

iv) College of Technology, Banaras Hindu University. The amount of grant-in-aid to be given to this institution is under active consideration and a decision is expected to be reached very shortly. Beginning with the session 1949-50 a 4 year course in Chemical Technology and Chemical Engineering has been started at the institution as recommended by the All India Council for Technical Education.

v) College of Engineering, Annamalai University- The Annamalai University having expressed its inability to meet from other sources, 1/3rd of the total cost of development of its Engineering College as recommended by the All India Council for Technical Education, the case of this institution is being separately referred to the Co-ordinating Committee for advice. (Item 3(b) of Agenda)

2. It has been decided that the capital grant for a year will be sanctioned for payment in advance in two instalments in May and November, on receipt of the following information:-

a) To be furnished in April.

Statements from or under the authority of the body in administrative charge of the institution showing:-

i) Unspent balances of previous advances on hand and the anticipated expenditure on buildings and equipment during the half year ending on 30th September.

ii) the actual expenditure during the preceding half year and the progressive total.

b) To be furnished in October.

i) A copy of the audited accounts of preceding year ending on 31st March showing the expenditure on buildings and equipment under the development scheme.

ii) A statement from or under the authority of the body in administrative charge of the institution showing (A) the expenditure actually incurred during the preceding half year ending on 30th September and the progressive total and (B) the unspent balance of previous advances on hand and the estimated expenditure for the rest of the financial year on building and equipment.

3) The recurring grant for each financial year is proposed to be sanctioned during December on receipt of the following information.

a) Number of students admitted to the various classes and on the rolls in the sections for which grants is made.

b) Audited statement of accounts showing the actual recurring expenditure for the preceding year on permissible items of

expenditure and all receipts of the institution.

c) A detailed statement from or under the authority of the body in administrative charge of the institution showing:-

i) the estimated recurring expenditure of the year.

ii) the actual expenditure for the first six months i.e. April to September and

iii) the anticipated receipts for the year from fees benefactions grants from Provincial Governments etc, and from all other sources from which the recurring expenditure of the institution was being met before the commencement of the scheme.

Until the teaching facilities of the institution are fully improved and expanded a suitable amount of grant will be sanctioned after considering the progress made and after scrutinising the above mentioned statements.

Payments made in any year on account of recurring grants will be treated as advance payments adjustable on the basis of the actual net excess of permissible expenditur over income from all sources if the actual next excess is less than the amounts paid as advances. The adjustments, when required will be made while making payment of the grant for the following year.

4) In the light of the information received in compliance with para 2(a) above from the nine institutions which are in receipt of grant-in-aid from the Centrd Government since 1947-48, the following amounts were sanctioned as first instalment of capital grant for 1949-50 for the following institutions:-

i) College of Science & Technology,
Calcutta University

a) Department of Applied Physics.

For buildings	Rs. 75,000

b) Department of Radio Physics & Electronics

For buildings.	Rs. 1,67,000
For equipment	Rs. 50,000

c) Department of Applied Chemistry.

For buildings.	Rs. 1,00,000

ii) Alagappa Chettiar College of Technology, Madras University

For buildings	Rs. 1,00,000
For equipment	Rs. 10,000

No grant was sanctioned for the other institutions as they had large unspent balances in hand from previous years' capital grants for buildings and equipment.

5. Except in the following instances the institutions appear to have generally abided by the conditions of grants.

i) The Victoria Jubilee Technical Institute, Bombay admitted 51 students to the Civil Engineering degree course and 61 student to the Mechanical & Electrical Engineering degree course as against the annual intake of 50 and 60 respectively laid down by Government in accordance with the recommendations of the Co-ordinating Committee.

ii) The instructions regarding reservation of seats for students of other Provinces etc. were generally not complied with when making admissions for the 1949-50 session. A detailed report in this connection is separately put up for consideration (Item 3(e)(ii) of Agenda).

iii) Dr. M.L. Jain was appointed to a permanent vacancy of Professor of Electrical Engineering in the College of Engineering & Technology, Bengal, Jadavpur, with effect from 1st August, 1949. The appointment was made on the basis of the recommendation of a Selection Committee which did not include any independent experts from the panels submitted by the institution and approved by the All India Council for Technical Education, as required by clause (ii) of the conditions governing grants. Particulars of Dr. M.L. Jain and of the Selection Committee on whose recommendation he has been appointed are given in Appendix 'A'. The principal reports that the vacancy was caused by the resignation of Prof. N.M.Shah and as

the classes were suffering badly the appointment of Dr. Jain had to be made immediately.

Proposals in respect of the panels of independent experts to be associated with the selection Committee appointed by the College are separately put up for consideration of the Co-ordinating Committee (Item 3(c) of Agenda)

iv) Clause (vi) of the Conditions governing grants stipulated that receipients of recurring grant shall bring the salary scale of teaching staff and their qualifications to the level approved by the Central Government. Revised scales of pay have however been put into effect at the College of Engineering & Technology Jadavpur from 1st April, 1949 without reference to the Government of India. The Principal has now applied for Government's approval to the new scales and has stated that the revision of the old grades was made as an interim arrangement pending sanction of the Government of India. The proposals are now under consideration of Government and the question of fitting in of the existing staff to the revised grades according to qualifications and other factors will also be taken up in due course.

v) The University of Nagpur has expressed its inability to comply with the conditions under which grants have been given for the development of the Laxminarayan Institution of Technology due to certain legal difficulties in the way of admitting non- Hindu and non-Provincial students to the institution. The University has accordingly been requested to arrange to refund the following amounts received as capital grant and interest free loan during 1947-48 and 1948-49.

Capital Grant-

a)	For buildings	Rs. 2,00,000
b)	For equipment	Rs. 1,00,000
c)	Interest free loan for construction of hostels	Rs. 1,28,000

The Vice-Chancellor of the University has since suggested a formula which would enable the institution to admit a certain

number of students from other regions and communities in return for Government Grant. This formula is now under consideration of the Government.

6) The following provision was made in the budget estimates for 1949-50 on account of grants -in-aid and loan for strengthening of existing technological institutions.

Capital grant for building & equipment.	Rs. 52,24,000
Recurring grant	Rs. 7,76,000
Interest free loan	Rs. 15,21,000

Anticipated expenditure during the year is however not expected to exceed the following:-

Capital grant for buildings & equipment.	Rs. 26,47,000
Recurring grant	Rs. 6,41,000
Interest free loan	Rs. 1,91,000

This is mainly due to the institutions not having been able to proceed with their construction programme according to schemule.

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Appendix A.

Selection Board for appointment of Professor of Electrical Engineering appointed by the College Council of the College of Engineering & Technology, Jadavpur, Bengal.

1) Sri P.K.Bhattacharyya,
Chief Electrical Engineer,
Electricity Department,
Government of West Bengal.

2) Professor-in-charge of the Electrical Engineering, Department of the College (College of Engineering & Technology, Bengal).

3) Secretary of the College (College of Engineering & Technology, Bengal)

4) Principal (College of Engineering & Technology, Bengal)

Particulars of Dr. M.L.Jain, appointed as Professor of Electrical Engineering, on the recommendation of the above-mentioned Board.

B.Sc. (Honours) in Electrical & Mechanical Engineering -First Class - Banaras Hindu University 1944 Awarded the Prince of Wales Gold Medal and N.V.Nageshwar Iyyar Prize in Electrical Technology and sent for study abroad with the Holkar Fellowship Received the Master of Electrical Engineering Degree from the University

of Cornell, U.S.A., on his thesis "commutation in D.C.Machines' Elected a member to the Honorary Society of Eta Kappa Nu at Cornell.

Subsequently Joined Harvard University and elected to the Honorary Society of Sigma XI. Also awarded the Gordon Mckay Fellowship.

Received the degree of Doctor of Science from the Harvard University on his thesis 'Investigation into the Stray Load Loss of Three Phase Induction Motors, submitted in 1948 . Elected Associate Member of the A.I.E.E. in 1949.

EIGHTH MEETING.

Annexure 3.
Item No.3(b) of Agenda.

CO-ORDINATING COMMITTEE

OF THE

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

Memorandum.

Sub:- Capital Grant for the Textile Technology Department of the Alagappa Chettiar College of Technology.

At its seventh meeting held on the 12th April, 1949, the Co-ordinating Committee had considered a letter dated the 7th April, 1949 from the Vice-Chancellor, Madras University, regarding capital grant for the Textile Technology Department of the Alagappa Chettiar College of Technology. A copy of this letteris attached (appendix 'A') .

On the recommendations of the All India Council for Technical Education the Government of India have agreed to give an ultimate recurring grant of Rs. 32,000/- per annum to this department (varying amounts in earlier years according to the progress of the institution). The Council had however recommended that no capital grant be given for this department which appeared to form a part of the Government Textile Institute, and no capital grant was accordingly sanctioned. As the letter from the Vice-Chancellor showed that the Madras University was contemplating to organise a self contained department of Textile Technology unconnected with the Government Textile Institute, the Co-ordinating Committee directed the Secretary to obtain further particulars to elucidate the position.

In his letter No. V.787 of 26th April, 1949, a copy of which appears at appendix 'B(the Vice-Chancellor, Madras University has confirmed that it is proposed to organise a self contained department of textile technology and has furnished some further particulars to elucidate the proposals. The Vice-Chancellor has subsequently intimated that the University is planningfor an anrual intake of 12 to 15 students to this Department as against the present intake of 6 only, and will be able to provide up to

Rs. 1½ lakhs for buildings and Rs. 1 lakh for equipment. The Vice-Chancellor Madras University has estimated that the building would cost Rs. 5 lakhs and the equipment Rs. 3 lakhs so that the Central Government are expected to provide the ramining Rs.3.5 lakhs for buildings and Rs. 2 lakhs for equipment.

The views of the Co-ordinating Committee are requested as to whether the Department should be considered for further financial assistance from the Centre in the shape of Capital Grant and if so to what extent.

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APPENDIX 'A'

Copy of the letter dated the 7th April, 1949 from Sir A.L. Mudaliar, Vice-Chancellor, University of Madras, to the Secretary, All India Council of Technical Education.

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On the recommendation of the All- India Council for Technical Education, the Government of India have been pleased to sanction to this University, recurring and non-recurring grants for the Alagappa Chettiar College of Technology, which are as follows:-

a) Capital Grant:- Buildings. Rs.2,92,000/-
Equipment. Rs.1,13,000/-

b) Ultimate recurring grant:-
Chemical Engineering. Rs. 40,000/-
Textile Technology. Rs. 32,000/-

I am deeply grateful to the Council and to the Government of India for this generous grant. I may, however, be permitted to point out that this University is one of the few Universities ~~xx~~ that has undertaken instruction in Textile Technology to the Degree course. Our buildings for housing the Chemical Engineering Department are going apace, but the construction of the Textile Technology Department has yet to be undertaken. The estimated cost of the buildings for this Department comes to Rs. Five lakhs. (I am herewith enclosing a rough plan of the proposed building which, it is estimated, will cost about 5 lakhs.)

As you are doubtless aware, the cost of providing the necessary appliances for a Department like that of Textile Technology, is very heavy, and this is estimated to come up to Rs. Three lakhs. At present, the teaching is being done in the Government Textile Institute, which is about seven miles distant from the College of Technology and where conditions have not been satisfactory. This has been accepted only as a temporary arrangement, and the University is anxious to have its own buildings and equipment for the proper training of the candidates in Textile Technology. You will agree that this is a very important branch of development, and as this University has been the first to undertake this, I beg to request that the Council may be pleased to consider the plea of the University and recommend to the Government of India the grant of Rs. Five lakhs for buildings and Rs. Three lakhs for equipment. I herewith enclose a list

of the equipment with probable cost.

I shall be most grateful if the Coordinating Committee and the Council will sympathetically consider this and recommend for urgent financial assistance. The non-recurring grant may, as in other cases, be paid over a period of three to four years.

With sincere apologies for my inability to attend, as I have been summoned to Delhi to attend an important meeting of the Government of India, Ministry of Education.

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31/ (18)

Appendix 'B'.

Copy of the letter No. V.787 dated the 26th April, 1949 From Sir A.L. Mudaliar, Vice.Chancellor, University of Madras, to the Secretary, All- India Council for Technical Education, Ministry of Education, New Delhi:

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In continuation of my telegram of date, I write to give you the following particulars. As has been stated in the telegram, the Department was working in cooperation with the Government Textile Institute for a limited period. Now that the Alagappa Chettiar College of Technology has been built for the Chemical Engineering Section, the University proposes to take on hand the construction of the Textile Technology Department, for which provision has been made in the site in which the Chemical Engineering Section has been built. The Madras University contemplates organizing a self-contained Department of Textile Technology unconnected with the Government Textile Institute. The further particulars required are herewith enclosed. I am also forwarding a copy of the letter of the Registrar, No. V.Tech. 793 dated the 14th May, 1948 addressed to you on the subject.

(i) List of existing equipment, etc. So far, no equipment has been purchased, as the work was being done at the Government Textile Institute, but a list of equipment has been drawn up and it is proposed to get this equipment in the course of the year.

(ii) List of additional equipment required together with approximate specifications and estimate of cost - Please see list attached for details of equipment with specifications and probable cost.

(iii) Building construction proposed for provision of improved facilities, etc. It is proposed to construct a building on the site where the A.C. College has been constructed. The estimated cost of the building is about Rs. 5 lakhs. Rough plan of the proposed building has been sent along with my letter of the 7th of April 1949.

(iv) Audited accounts- Furnished for the College as a whole already.

(v) List of teaching staff, their salaries and grade - Vide list attached. It may be mentioned that the staff is now on part-time basis.

(vi) Additional teachers required for the improvement and development

As stated in the Registrar's letter, the additional staff needed when the Department is organized under the control of the University would be one Professor, two Readers and three lecturers with Demonstrators and Technicians. The proposed salaries are

Professor..	Rs.750-50-1,000/-
Reader ..	Rs.400-25-600
Lecturer ..	Rs. 200-15-350-20-450-25-500.
Demonstrator ..	Rs. 100-10-250.

The suggestion of the All India Council for Technical Education in regard to the annual intake of students has been noted and will be adhered to.

P.T.O.

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I request that this matter be placed as an urgent subject for consideration.

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33 (19)

UNIVERSITY OF MADRAS

Copy of letter No. V.Tech. 793 dated 14.5.1948 from the Registrar, University of Madras to the Secretary to the Government of India, Ministry of Education, New Delhi .

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I refer to your letter No. F. 1-52/47-E IIII dated the 23rd March, 1948. The following papers are enclosed furnishing information called for by you.

I. Chemical Engineering Department

(i) A list of equipment with details of book value and year of purchase.

No depreciation has been taken into account as the equipment was received only recently.

(2) A list of additional equipment required together with the approximate specification and estimate of cost which comes to over three lakhs.

(3) A set of plans for the construction of the main buildings of the college is attached. The building work is now in progress and is estimated to be completed by July, 1949. The general work is expected to cost a sum of Rs. 14 lakhs. Details regarding the fittings and installations are under preparation and it is expected that these will cost not less than Rs. 5 lakhs.

(4) Extract from the Budget Estimate relating to the Department for the past two years showing the income and expenditure as audited and approved by the Government Local Fund Department

(5) A list showing the names of the members of the teaching staff their salaries and grade.

(6) Additional staff required :

1 Professor on Rs. 750-50-1000
2 Readers on Rs. 400-25-600
2 Senior Lecturers on Rs. 200-15-350-20-450-25-500
2 Demonstrators 120-10-150.

II. Textile Technology.

(1) No equipment for this Department has been acquired by the University. The Department is now working in co-operation with the Government Textile Institute where instruction is given in the specialised branch of Textile Technology: nor has a full complement of staff been appointed, as members of the staff of the Government Textile Institute are fully co-operating in this course- The full development plan of this Department of Technology as envisaged would mean the construction of additional buildings and equipment and the provision of separate staff.

(2) The equipment required together with the approximate specification and cost is enclosed.

(3) As will be seen from the plan submitted under I(3) a separate block for Textile Technology has been provided for but the construction of this building has not been taken up on account of want of financial provision. This building is estimated to cost about Rs. 5 lakhs, in addition to equipment referred to in (2) above.

(4) Please see item I (4) above for the audited statement of income and expenditure.

5) A list of the members of the teaching staff is enclosed. The Professor and certain staff are employed on a part-time basis and they are paid only an honorarium.

6) The staff required when the Department is fully formed would necessitate the appointment of at least six permanent members of staff dealing with different branches of Textile Technology in addition to the staff for Chemical Engineering which will be common to the two Departments. One Professor, two Readers and three Lecturers may be required.

It is proposed in course of time to add other sections to this Department. These sections may be Textile Chemistry, Pharmaceuticals and Fine Chemicals, Oils and Fats and Ceramics. In view of the fact that the Central Government has undertaken the establishment of a Leather Technological Institute at Guindy and an Electro-Technology Institute at Karaikudi, the University will utilise with the kind permission of the Government of India the resources of these institutes for purposes of training the personnel and for research work connected therewith. The University is planning for a close co-operation between these Technological Institutes and the Alagappa Chettiar College of Technology.

I have to point out that any further development plan of the College of Technology would become possible only with additional financial assistance from the Centre and Province. I request you to kindly place this letter before the appropriate authorities for favour of their sanctioning the additional grants for the Departments of Chemical Engineering and Textile Technology with a view to their being developed into full-fledged departments capable of taking an increased number of students.

List of machinery required for Textile Testing.

Makers:- Goodbrands, 19, Victoria Street, Manchester, or other manufacturers.

1. Wrap Reel No. 5 with tension board and "Reform" Hank stand No.4.
2. Knowles' Patent yarn balance fitted in a glass case.
3. Yarn scale in glass case for weighing leas of yarn, Rovings etc. No. 880 R.
4. Wrap Block (Circumference one yard) No. 1.
5. Cotton yarn and cloth quadrant fitted in a glass case.
6. Beesley's yarn balance fitted in a glass case.
7. Stub's yarn assorting balance.
8. Lap scale with Agate Beam No. 19.
9. Yarn examining machine No. 1.
10. Dead weight lever yarn lea Tester (Motor driven) No.18.
11. Ballistic Testing Machine.
12. Twist testor (with Tension Motion) No. 4.
13. Moisture Testing oven (electrically heated) fitted with automatic self recording balance FDA.
14. Horizontal cloth Testing machine (Motor driven) Type C.
15. Baer single Thread Tester (Oil plunger type) Makers: Henry Baer & Co., Zurich.
16. Ball's sledge cotton sorter.
17. Mirrolite and counting glass 1" sq.
18. Hygrometer (wet and dry bulb thermometer)
19. Microscope. Rs.15,000/-

SPINNING SECTION: (All machines to be driven by individual motors).

Makers:- Platt Brothers, Oldham, England or 2.Howard & Bullough Ltd., Acrington, England or 3. Twedales and Smalley, Castleton, Manchester.

Ginning :- 1 . Knife Roller gin. 2 Macarthy Gin. 3. Saw gin.

Mixing :-1. Feed Latties. 2. Hopper Bale Breaker. 3. Single Crighton Opener. 4. Pneumatic Delivery box. 5. Exhaust fan.

Blow Room: 1. Hopper Feeder. 2. Patent Super Grid Area Porcupine opener fitted with Shirley Cage. 3. Onndenser Cage (suitable to be mounted upon a Crighton opener) 4. Crighton Opener. 5. Dust Trunk with travelling latties. 6. Exhaust opener combined with lap forming mechanism including pair of cages, 2 or 3 bladed beater, pair of cages, and lap forming mechanism. 7. Finisher Scutcher.

Card Room :-1. Shirley card. 2. Flat card. 3. Vacuum card stripping apparatus.

Combing :- 1. Silver Lap machine. 2. Ribbon Lap machine. 3. Nasmith comber.

Drawing :- Draw Frame with three heads and two deliveries.

Frames :- 1. Slubbing frame fitted with high drafting system with 20 spindles. 2. Intermediate frame (Arron tyre with 40 spindles) 3. Roving frame fitted with high drafting system with 60 spindles.)

Spinnings :- 1. Ring frame of approximately 50 spindles for Warp 6" lift with 1¾" ring, with 4 roller systems of drafting oneone side and the caseblanca arron system on the other. 2. Ring frame for weft 5" lift 1¾ ring with four roller system of drafting on one side and with three roller system on the other. 3. Self acting Mule 50 spindles,

Doubling :- Doubling frame one side fitted for dry doubling and other for wet doubling 7" or 8", 2" ring with 40 spindles per side.

1. Card clothing apparatus.
2. Roller covering apparatus.
3. Tubular banding machine.
4. Yarn Bundling machine.
5. Reeling machine.

Accessories :- 3 dozen cans, 9" dia. 36" height spare wheels for changing draft, Twist, Ratchet, Lifter in fly frames; Travellers for Ring frames; Spare Bobbins for fly frames and ring frames, Horsfall Grinding roller; Dead Emery Grinding roller, Stripping Roller..

Approximate price Rs.2,00,000/- (Two lakhs).

WEAVING SECTION:

Makers :-Platt Brothers, Oldham, England or 2. Henry Livsay, Blackburn, England or 3. Butterworth and Dickinson, Burnley, England.

Preparation :- (1) Bobbin winding machine with 20 spindles (Mangle wheel traversed). (2) Cheese winding machine with 20 spindles. (3) High speed Cone winder. (4) High speed warping with magazine creel. 5) Slasher sizing machine and mixing becks. 6) Boiler Rs.37,000/-

Weavings:- 1.Twill loom. (2) Two shuttle drop Box-Loom. 3. Four shuttle drop Box-Loom. 4.Six shuttle Circular Box Loom. 5. Automatic weft Replenishing Loom. 6. Leno Loom. 7.Terry Tower Loom. 8.Dobby Loom. 9. Jacquard Loom.

(Average width of loom 50 inches). Rs.16,000/-

FINISHING SECTION:

Makers :- Mather & Platt, Oldham, England or other approved manufacturers.

Machines :- Piece and Sewing machine.
Two bowl starch mangle coupled with five cylinder Horizontal drying machine.
Three bowl Calender. Rs.25,000/-
Stamping machine.

Humidifying:- Small humidifying plant. Rs- 5,000/-

Total - About Rs. 3 lakhs.

TEXTILE TECHNOLOGY

Existing staff - Part-time.

1.Mr. D.M.Amalsad.Honorary Prof of Textile Technology. Honorarium.	Rs. 400/-
2. Rafiuddin Ahmed Quereshi. Lecturer	Rs. 200/-
3. S.Krishnamurti. Lecturer.	Rs. 200/-
4. A.R.Ramaswami. Lecturer in Textile Chemistry (Part-time)Honorarium.	Rs. 75/-
5. B.Srinivasa Rao. Arts Instructor (Part-time) Honorarium.	Rs. 25/-

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Annexure 4 EIGHTH MEETING.
Item No.3(c)of Agenda.

CO-ORDINATING COMMITTEE

OF THE

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

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MEMORANDUM.

Sub:- Panels of independent experts to be associated with the Selection Committee's appointed for the purpose of recruitment of Staff of/ non-University institutions. /Centrally aided

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Under clause II (a) of the conditions for grants, adopted by the All India Council for Technical Education at its 3rd meeting held on the 22nd April, 1948, the non-University institutions are required to include in the Selection Committees appointed for the purpose of recruitment of staff independent experts from the panels submitted by the institutions and approved by the Council. The Victoria Jubilee Technical Institute, Bombay, and the College of Engineering & Technology Jadavpur, have accordingly submitted the following panels of experts for the consideration and approval of the Co-ordinating Committee:-

List of Panels.

Victoria Jubilee Technical, Institute, Bombay.

(A) Civil Engineering.

1. Mr. N.S. Gupchup, B.Sc., B.E., M. I.E., C/o Messrs Moti chand & Co., Bombay.
2. Mr. F.M. Surveyor, Executive Engineer, Bombay Port Trust, Bombay.
3. The Chief Engineer P.W.D., Bombay.
4. The Chief Engineer (Civil) G.I. P.Railway.
5. The Chief Engineer (Civil) B.B.& C.I., Railway,

(B) Mechanical Engineering.

1. The Chief Mechanical Engineer, B.B. & C.I. Railway.
2. The Chief Mechanical Engineer, G.I.P.Railway.
3. The Chief Mechanical Engineer, Bombay Port Trust, Bombay.

(C) Electrical Engineering.

2. Mr. F.G. Russell, General Manager,
Tata Hydro Electric Power Supply Coy. Bombay.

3. Mr. S.R. Kantabet, B.E., M.I.E.E.,
Fellow I.I.E., General Manager, Overseas Communications Service, Bombay.

4. The Chief Electrical Engineer, G.I.P. Railway.

5. The Chief Electrical Engineer, B.B. & C.I. Railway.

(D) Textile Manufacturers.

1. The Chairman Bombay Millowner's Association,
Bombay (if not already on the Committee).

2. Mr. S.D. Oka B.Sc., Tech., Manager, Jam Mills Bombay.

3. Mr. B. Saha M.Sc., Tech., Manager Shafurji Bharucha
Mills Ltd., Bombay.

4. Dr. J.F. Perwania, Ph.D., Director Indian Cassablanca Ltd.
Bombay.

5. Mr. F. Guthrie,
General Manager, Century Mills Ltd., Bombay.

College of Engineering & Technology, Bengal, Jadavpur.

(A) Mechanical Engineering.

1. Prof. A.C. Roy, B.Sc. (Glassgow), Head of the
Mechanical Engineering Department, Bengal Engineering College.

2. Sri H.C. Das Gupta B.M.E. (Michigam)
Bengal Electric Lamp Works.

3. Prof. S.K. Chakravarti, B.S. (Worcester)
M.S. (Michigan). A.M.M. E.

4. Sri J.Mookherjee, A.M.I.E.,
Messrs. Guest Keen & Co.,

5. Sri K.C. Roy,
Executive Engineer, Hijore.

6. Sri A.K.Roy, A.M.I.E.,
Outfall Engineer, Calcutta Corporation.

(B) i) Electrical Engineering.

1. Sri P.K. Bhattacharyya, Chief Electrical Engineer,
Electricity Development, Government of West Bengal.

2. Prof. A.K. Das, Head of the Department of Electrical
Engineering, Bengal Engineering College.

3. Sri N.N. Sen Gupta, M.Sc. (Tech) Chief Electrical
Inspector, Bengal.

4. Mr. J.W.Church, M.I.E., Chief Engineer, Calcutta Electric
Supply Corporation Ltd.,

ii) Communication Engineering.

1. Dr. S.K. Mitra, D.Sc., F.N.I., Ghosh Professor of Physics, Calcutta University.

2. Mr. P.C. Vaish,
General Manager, Telephones, Calcutta District.

(C) Chemical Engineering Department.

1. Dr. Chittaranjan Barat M.S.(Cal) Dr. Ing. (Munich)

2. Sri B. Mukherjee, B.E.,
Messrs. Oriental Gas Co., Ltd.,

3. Dr. G.I. Kane,
Department of Chemical Technology,
University of Bombay.

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Annexure 5
Item No. 3a of Agenda

41/(27)

EIGHTH MEETING.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

Sub:- Recommendations of the All India Council for Technical Education for Central grant-in-aid to Engineering College, Annamalai University - Request of the University for waiving of the condition requiring it to meet 1/3rd cost of development.

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In making recommendations for grant-in-aid to the College of Engineering, Annamalai University, the Co-ordinating Committee had recommended at its 4th meeting held on the 15th November, 1947 that grants be given to it by the Central Government only if the University authorities agree to raise sufficient funds from other sources to meet at least 1/3rd of the total capital and recurring cost of bringing its Civil, Mechanical and Electrical Engg. Departments up to the requisite standard. This recommendation was based on the very meagre facilities available at the institution when it was inspected by the Visiting Committee. The Co-ordinating Committee had estimated that the implementation of the development plan of the aforesaid departments of the College would entail the following expenditure:-

Rs. 6.00 lakhs on buildings.

Rs.12.00 lakhs on equipment.

Rs. 3.96 lakhs for construction of students hostel.

and an ultimate recurring grant of Rs. 1.92 lakhs.

2. The institution has informed that since the report by the Visiting Committee it has put up buildings (including a hostel and staff quarters) costing Rs. 4.65 lakhs and equipment worth Rs. 3.98 lakhs. It has also arranged for the recurring cost with a statutory block grant of Rs. 2.00 lakhs from the Madras Government for the whole institution including its Chemical Engineering Department for which no grant is proposed to be given by the Central Government. The additional cost of implementing the development plan

is now estimated as follows:-

Rs. 4.22 lakhs on College buildings.

Rs. 6.65 lakhs on equipment ——— (after taking into account
(the sum of Rs.1,37,000
Rs. 3.6 lakhs on construction of students' hostel (still available with the
(institution for spending
on equipment)

and an ultimate recurring grant of Rs.1.00 lakh.

3. In letter No. 8946B I dated the 31st August, 1949 from the Registrar, Annamalai University, relevant extracts from which are reproduced below, it is requested that the condition requiring the University to meet 1/3rd cost of development may be waived and the present sources of revenue at the University in the shape of fees and provincial subsidies, and the capital expenditure already incurred may be taken as sufficient contribution by the University.

The Coordinating Committee's views in the matter are requested.

Copy of an Extract from letter No. 8946 B 1 dated the 31st August 1949 from the Registrar, Annamalai University to the Secretary to the Government of India, Ministry of Education.

Sub:- Recommendation of the All India Council for Technical Education for Grant-in-aid to the Engineering College, Annamalai University.

Ref:- Your letter No. F.1-50/47-T2 dated 4th August, 1949.

In reply to the reference from the Government of India in their letter No. F.1-50/47-T2 dated 4th August, 1949, asking whether the University is prepared to find 1/3 of the capital and recurring expenditure towards the cost of development of the Engineering College, I am to state that the sources of income for the University are: (1) Fee Income (2) Income from Endowments, and (3) Government's Contribution Capital, and Recurring. All the resources of the University in the shape of (i) a Permanent Endowment of Rs. 70 lakhs made up of 20 lakhs by the Founder and 27 lakhs by Madras Government (ii) a General Fund to which the interest on the Permanent Endowment Fund varying between 2.79 lakhs to 2.37 lakhs accord-

ing as rate of interest rises or falls on Government securities are utilized for purposes of meeting the cost of the original 3 faculties of Arts, Science, and Oriental Studies. The new Department of Engineering and Technology was made possible by a grant of 10 lakhs by the Government of Madras, 5 lakhs of donation by Sir Rm. Alagappa Chettiar and 5 lakhs found by the University and an assurance of 2 lakhs of statutory grant earmarked for the new studies by the Government of Madras. This new department was added on only after ascertaining that with all resources then available, it was just possible to meet the requirements on the then estimates of Engineering costs. A committee of experts with Dr. Sir A. Lakshmanaswami Mudaliar, Vice-Chancellor Madras University, went in March 1948 into the question of the finances of the University and found that the provision of funds to the new departments of Engineering and Technology has deleteriously affected the original department of Arts, Science and Oriental Studies.

Thus the University now maintains (1) an arts College (2) Science College, (3) Oriental Colleges for (a) Tamil, (b) Samskrit (c) Music and (4) a College of Engineering and Technology. In the case of the three Oriental Colleges there is no fee income as tuition is free. In addition funds have to be found for the maintenance of students by way of award of stipends as in other oriental colleges in India. Thus in 3 colleges, out of six threre is no fee income. The income is therefore very limited.

The University finds itself unable to hold forth any hopes of additional resources to promote the further development of Engineering courses. At the same time the University sees the need to raise the standard of Engineering instruction and have to request the Government to consider the non-recurring and recurring expenditure on the Engineering and Technological colleges as the University's 1/3 contribution on the extra cost of development. For purpose of compliance, the present provincial Government's contribution of 2 lakhs and the fee and examination income of 1½ lakhs may be construed to be the contribution of the University towards recurring cost. Towards non-recurring cost, similarly the contribution of

20 lakhs by the Founder may be construed to be the University's third of the cost.

I have therefore once again to request the Government of India being pleased to ~~xxxxxxx~~ recognise the present recurring and non-recurring expenditure on the colleges as the University 's 1/3 contribution, and to sanction financial assistance for the development of its Engineering and Technological Colleges in furtherence of the cause of Technical Education in the Southern ~~X~~ ~~Xx~~ Zone of India.

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Annexure 6
Item No. 3 (e) (i)

Eighth Meeting

Co-ordinating Committee

Subject:- Appointment of Visiting Committees or Inspectors for non-university institutions.

Clause iv (a) of the conditions governing grants to Technological Institutions requires that a Visiting Committee or an Inspector appointed by the All India Council for Technical Education shall periodically visit the non-University institutions receiving grant and report to the Council and the Provincial Government concerned whether the grants given by the Government are being properly utilised and also whether proper standards of teaching and examinations are being maintained.

The following non-university institutions are at present receiving grants from the centre.

1) College of Engineering & Technology, Bengal, Jadavpur.

2) Victoria Jubilee Technical Institute, Bombay.

P.T.O.

The Co-ordinating Committee is requested to appoint a Visiting Committee or an Inspector for each of the above-named institutions and also suggest the number of inspections to be made each year.

FCS.

EIGHTH MEETING.

Annexure 7.

Item No. 3 (e) (ii) of Agenda.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

Sub:- Quota of seats to be reserved for various Provinces etc. in the Centrally-aided Technical Institutions- other than Central Universities institution.

At its sixth meeting held on the 4th October, 1948, the Co-ordinating Committee of the All India Council for Technical Education had suggested that about 30% of the total seats in each centrally aided institution should be reserved for students from Provinces and States other than that in which the institution is located. The Committee had also laid down the procedure to be followed by the institutions in admitting such extra-provincial students and expressed the view that if the scheme did not work properly the question of fixing definite provincial quotas may be considered.

The views of the Co-ordinating Committee were communicated to the institutions concerned other than Central Universities institutions which normally admit a larger proportion of students from other Provinces. The institutions were also supplied with data concerning the present estimated population of the various provinces etc. and a statement showing roughly how the 30% of the maximum intake laid down by the Co-ordinating Committee may be spread over the various provinces etc. after taking into consideration their population and existing facilities. A copy of this Ministry's letter on the subject, No. F.1-8/48-T2 dated the 13th June, 1949 with enclosures, appears at Appendix 'C'.

The actual admission figures reported by the institution concerned, vide Appendix 'B' cannot be regarded as satisfactory and the authorities of atleast some of the institutions do not appear to have attached due weight to the Education Ministry's letter referred to above which had reached their hands before the commencement of the session and before the admissions were actually announced.

The Government of India attach the greatest importance to the condition regarding reservation of seats for students of other provinces etc. and would insist on its scrupulous observance by the institutions concerned. Government would like to have the views of the Co-ordinating Committee on the quota of seats to be given to each Province and State.

===

Appendix 'A'.

No. F.1-8/48-T2.
Government of India,
Ministry of Education.

New Delhi, the 13th June, 1949.

From

Secretary to the Government of India.
Ministry of Education.

To

The Principal, V.J.T.I. Bombay.
The Principal, College of Engineering & Technology, Bengal Jadavpur.
The Vice-Chancellor, Madras University.
The Vice-Chancellor, Nagpur University.
The Vice-Chancellor, Andhra University.
The Vice-Chancellor, Calcutta University.

SUBJECT: Reservation of seats for Provinces etc. in the Technical Institutions receiving grant-in-aid from the Central Government.

...

Sir,

With reference to the concluding paragraph of this Ministry's letter No. F.1-48/47-T2
F.1-47/47-T2.
F.1-52/47-T2.
F.1-55/47-T2
F.1-53/47-T2.
F.1-54/47-T2

dated the 16th March, 1949, I am directed to say that the Coordinating Committee of the All India Council for Technical Education has made the following recommendation in regard to the quota of seats to be allotted to Provinces etc. in each of the centrally aided Technical Institution:-

"---------- about 30 per cent of the total seats in each Institution should be reserved for students from Provinces other then that in which the institution is located. In every case students should make applications direct to the Institutions concerned and not through the Central, Provincial or State Governments concerned. The outstation applicants should not be called upon to sit for an entrance or a viva voce test for admission, but such applicants should be medically fit and fulfil the minimum educational qualifications, (say a first class intermediate in science,) to be prescribed by each of the Institutions for the extra-provincial students. Students should be selected normally on merit that is on the percentage of marks secured by them in the prescribed examination and the 30% seats distributed between the Provinces etc. on an equitable basis. In making admission the Heads of the Institutions concerned should take into account the population of the various provinces and states and the facilities for technical education obtaining therein. Due regard should be given to the claims of students from Provinces which are lacking in facilities for education in the particular branch of study to which admission is sought. For purposes of allotment of seats, the domicile of a student will

P.T.O.

be determined by that of his guardian, that is to say a non-Bengalee whose guardian normally resides in Bengal, should be regarded as a Bengali for purposes of admission.

2. I am to enclose for your guidance in allocating, between the provinces and states, the 30% seats available at the

V.J.T.I. Bombay.
College of Engg. & Technology, Jadavpur
Alagappa Chettiar College of Technology
Luxminarayan Institute of Technology
Jaipur Vikram Deo College of Science & Technology.
Depts. of Applied Physics, Applied Chemistry and Radio Physics and Electronics, Calcutta University.

i) a statement showing the present estimated population of the various provinces, centrally administered areas, states unions and individual states.

ii) a statement showing roughly how the 30% of the maximum intake as laid down by the Co-ordinating Committee may be spread over the various provinces etc after taking into consideration their population and existing facilities. A few unreserved seats have been provided for x in some causes for the benefit of deserving candidates who may not belong to the province in which the institution concerned is located nor to any of the other Provinces etc for which seats may be reserved.

3. If the required number of suitable candidates are not forthcoming from any provinces or state, the seats earmarked for it may be allotted to students from the adjoining areas.

Information regarding the seats available for extra-provincial students may please be included in the advertisements regarding the dates of admission to the institution for the next session. Such students should also receive preferential treatment in the the matter of hostel accommodation.

4. I am to request that a report showing how the 30% seats are actually allotted between the Provinces states, etc. may be furnished to this Ministry after the admissions for the ensuing session are over.

Yours faithfully,

Sd/- G.K.Chandiramani.
for Secretary.

Copy, without enclosures forwarded to the Governments of Assam, Bihar, Bombay, Central Provinces & Berar, Madras, East Punjab, Orissa, United Province and West Bengal, for information with reference to this Ministry's letter No. F.1-3/48-E III(P) dated the 7th May, 1948.

By Order,

Sd/- G.K.Chandiramani.
for Secretary.

POPULATION ESTIMATES 1948.
(in thousands).

INDIAN UNION.	337.211
PROVINCES:	
Madras	53,384
Bombay	30,970
Bengal, West	21,372
United Provinces	59,941
Punjab East	14,054
Bihar	37,741
Central Provinces	20,591
Assam	7,749
Orissa	13,874
CENTRALLY ADMINISTERED AREAS.	
Ajmer Merwara	0,612
Andamans	36
Coorg	169
Delhi	1,257
Panth Piploda	6
Himachal Pradesh	1,035
Cutch	536
Bilaspur	122
Bhopal	834
UNIONS:	
Madhya Bharat	7,585
Matsya	1,951
Pepsu	3,790
Rajasthan	12,940
Saurashtra	4,296
Vindhya Pradesh	3,790
Kerala Union	8,026
INDIVIDUAL STATES:	
Assam States	1,949
Hyderabad	17,347
Kashmir	4,270
Mysore.	7,850
Sikkim	129

Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject.	Existing Facilities.	Aided institutions (other than B.H.U) with total intake	30% of seats in Column 3.	Proposed allocation of available seats in Col. 4.	REMARKS.
1	2	3	4	5	6
Mechanical Engineering.	West Bengal. 108 seats C.P.& Berar 10 " East Punjab 9 " Madras 75 " U.P. 111 " Rajasthan (Jaipur) 75 " Hyderabad 58 " Mysore 97 " Travancore 8 " Total 548	Jadavpur College 80 Seats V.J.T.I. 30 " 110 "	24 Seats 9 " 33 "	Bihar 10 Assam 2 Orissa 4 Madhya Bharat 2 Saurashtra 1 Vindhya Pradesh 1 Kashmir 1 Pepsu 1 Centrally Administered Areas & Other States 3 Unreserved 8 33	Seats to be provided as follows:- Jadavpur College. Assam 2 Orissa 4 Bihar 10 Vindhya Pradesh 1 Kashmir 1 Pepsu 1 Unreserved 5 24 J.J.T.I. Bombay. Saurashtra 1 Madhya Bharat 2 Centrally Administered areas & other States 3 Unreserved 3 9

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Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject.	Existing facilities.	Aided institutions with total intake.	30% of seats in Col. 3.	Proposed allocation of available seats in Col. 4.	Remarks.
1.	2	3	4	5	6
Civil Engineering.	Bombay. 365 Seats. West Bengal. 72 " C.P.& Berar. 20 " East Punjab. 18 " Madras. 205 " U.P. 70 " Hyderabad. 25 " Mysore. 154 " Travancore. 34 " Bihar. 50 " 1013 "	V.J.T.I. 50 seats. Bombay.	15	Assam. 2 Orissa. 3 Rajasthan & Madhya Bharat. 4 Centrally Administered areas & other States. 2 Un-Reserved 4 15	

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(6)

Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject.	Existing Facilities.	Aided institutions (other than B.H.U.) with total intake.	30% of seats in Column 3.	Proposed allocation of available seats in Col. 4.	Remarks.
1	2	3	4	5	6
Electrical Engineering	Bombay 93 Seats. West Bengal. 86 " C.P.& Berar. 15 " East Punjab. 9 " Madras. 103 " U.P. 121 " Rajasthan. 75 " Mysore. 89 " Kerala. 8 " Delhi. 40 " Bihar. 16 ""	V.J.T.I. 80 seats Jadavpur 60 " College.	9 seats. 18 " 27 "	Assam 3 Orissa. 5 Hyderabad. 5 Madhya Bharat. 3 Saurashtra. 2 Vindhya Pradesh. 1 Pepsu. 1 Kashmir. 1 Centrally Admn. Area (other than Delhi) & other States. 2 Unreserved. 4 27	Seats to be provided as follows :- Jadavpur College :- Assam. 3 Orissa. 5 Hyderabad. 5 Pepsu. 1 Kashmir. 1 Unreserved. 3 18 V.J.T.I. Bombay. Madhya Bharat. 3 Saurashtra. 2 Vindhya Pradesh. 1 Centrally Admn. Area (other than Delhi) & other States. 2 Unreserved. 1 9

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Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject.	Existing facilities.		Aided institutions with 30 total intake.		30% of seats in Col. 3.	Proposed allocation available seats in Col. 4.		Remarks.
1	2		3		4	5		6
Chemical Engg.	Bombay.	20 Seats.	Jadavpur College.	60 Seats.	18	U.P.	7	Seats to be provided as follows :-
	West Bengal.	60 "	Luxminarayan Inst.			Bihar.	5	
	Madras.	58 "	of Technology.	18 "	5	Orissa.	2	
	C.P.& Berar.	18 "	Allagappa Chettiar			Assam.	1	Jadavpur College.
	Mysore.	20 "	College.	30 "	9	East Punjab	2	
				78 "	32	Hyderabad.	2	U.P. 7
						Kerala States.	1	Bihar. 5
						Greater Rajas-than.	2	Greater Rajisthan 2
						Madhya Bharat.	1	Assam. 1
						Centrally Administered areas and other states.	2	Unreserved. 3
						unreserved.	6	18
					32			Luxminarayan Instt. of Technology.
								Madhya Bharat 1
								East Punjab. 2
								Centrally admn. areas. 1
								Unreserved. 1
								5
								Allagapa Chettiar College.
								Hyderabad. 2
								Kerala. 1
								Orissa. 2
								Centrally admn. areas 2
								Unreserved. 2
								9

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Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject	Existing Facilities.	Aided institutions with total intake	30% of seats in columns 3.	Proposed allocation of available seats in Col. 4.		Remarks.
1	2	3	4	5		6
Textile Technology	Bombay-20 seats Madras 6 " Mysore 20 " 46 seats	V.J.T.I Bombay Alagappa Chettiar College Madras	20 seats 6 " 26 seats	6 seats 2 " 8 "	U.P. Bihar West Bengal and Assam C.P. & Berar & Orissa East Punjab & Centrally Administered Areas Hyderabad & Kerala States Greater Rajasthan & Madhya Bharat and Other states	2 seats. 1 " 1 seats 1 " 1 " 1 " 1 " 8 "	Seats for C.P. and Berar Orissa & Hyderabad and Kerala to be provided at the Chettiar College, and for the other Provinces at V.J.T.I.

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Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions.

Subject	Existing facilities		Aided institutions with total intake.	30% of seats in Col.3.	Proposed allocation of available seats in Col. 4.		Remarks
1	2		3	4	5		6
Applied Physics	West Bengal.	40 seats	Department of Applied Physics, Calcutta University. 40	12	U.P.	2	
	Madras	72 seats			Bombay	1	
					Bihar	1	
					C.P. & Berar	1	
					Assam & Orissa	1	
					East Punjab & Centrally Admn. Areas.	1	
					Hyderabad, Mysore and Kerala States	1	
					Greater Rajasthan Madhya Bharat and other states	1	
					Un-reserved.	3	
						12	

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Statement showing proposed allocation of quotas for Provinces and States at the various centrally aided Technical Institutions

Subject	Existing facilities		Aided institutions with total intake.		30% of seats in Column 3.	Proposed allocation of available seats in Col.4.		Remarks
1		2	3		4	5		6
Applied Chemistry	Delhi	25 seats	Laxminarayana Institute of Technology	18 seats	5 seats	Bihar	6	Seats to be provided as follows :-
	Bombay	53 "				Assam	2	
	West Bengal	56 "	Deptt. of Applied Chem. Calcutta Univ	56 "	17 seats	Orissa	3	
	C.P.& Berar	18 "				East Punjab	3	Laxminarayan Instt.
	Madras	51 "	Jeypore Vikram Deo College	21 "	6 seats	Hyderabad & Kerala, States	4	East Punjab 3
	U.P.	86				Greater Rajasthan and Madhya Bharat.	3	Central Administered areas 1
	Mysore.	45 "				Centrally admn. area (other than Delhi) & other states unreserved.	3	unreserved 1
	Total	314 "					4	5
							28	Department of Applied Chemistry, Calcutta University.
								Bihar 6
								Assam 2
								Greater Rajasthan and Madhya Bharat 3
								Orissa 2
								Centrally administered areas and other states 2
								unreserved 2
								17
								Jeypore Vikram Deo College
								Hyderabad & Kerala States 4
								Orissa 1
								unreserved 1
								6

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(11)

Statement showing proposed allocation of quotas for Provinces and States at the various Centrally aided Technical Institutions.

Subject	Existing Facilities	Aided institutions (other than B.H.U) with total intake.	30% of seats in Col. 3.	Proposed allocation of available seats in Col. 4.	Remarks.
2		3	4	5	6
Radio Physics and Electronics.	West Bengal 30 seats	Dept. of Radio Physics and Electronics, Calcutta University - 20.	6	Bombay 1 Madras 1 U.P. 1 Bihar & Assam 1 C.P.& Berar, and Orissa 1 East Punjab centrally administered areas, and states 1 6	

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(12)

Statement showing proposed allocation of quotas for Provinces and States at the various Centrally aided Technical Institutions

Subject	Existing facilities	Aided institutions with total intake.	30% of seats in Col. 3.	Proposed allocation of available seats in Col.4.	Remarks.
1	2	3	4	5	6
Pharmaceutics.	U.P. 22 seats Bombay 12 " Madras 18 " 52 "	Jeypore Vikram Deo College of Science and Technology -18 seats	6	West Bengal and Assam. 1 Bihar. 1 C.P. & Berar and Orissa. 1 East Punjab and Centrally administered areas 1 States and States Unions 2 6	

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APPENDIX 'B'

Statement showing the number of students from various Provinces and states admitted during 1949 to the Victoria Jubilee Technical Institute, Bombay.

Name of course.	Intake as per Co-ordinating Committee recommendations.	Extra Provincial quota.	Suggested allocation of seats in Col. 3. Name of Provinces (a)	No. of seats (b)	Actual intake	Extra Provincial quota corresponding to actual intake	Admissions from various Provinces etc. Name of Provinces (a)	No. of seats (b)	Nos. actually joined	REMARKS.
1	2	3	4.		5	6.	7.		8	9.
1) Civil Engineering	50	15	Assam	2	51	15	Punjab	5	5	The Principal reports that the Govt of India letter giving the allotment of seat according to the Provinces w received by him about the middle of June 1949 after t admissions to the Engineeri and B.Text Degree courses were decided upon. Thirty per cent of the seats were offered to Non-Bombay students and the vacancies arising out of the non-acceptance of the offer were filled up by either Bombay or Non-Bombay studen Figures under Punjab and Si refer to displaced student from these Provinces.
			Orissa	3			Sind (unreserved)	4	4	
			Rajasthan & Madhyabharat	4			Greater Rajasthan	1	1	
			Centrally administered areas and other states	2				10	10	
			Unreserved	4						
2) Mechanical & Electrical Engineering.	60	18	Saurashtra	3	61	18	Punjab	10	10	
			Madhyabharat	5			Cochin	1	1	
			Vindhya Pradesh	1			Kashmir	1	1	
			Centrally administered areas and other states unreserved	5			Madras	2	2	
				44			Madhyabharat	1	1	
							Unreserved (Sind)	3	3	
								18	18	
3) Textile Technology	20	6	U.P.	1	19	6	Punjab	1	1	
			Bihar	1			Madras	3	3	
			West Bengal	1			Bengal	1	1	
			East Punjab and Centrally administered areas	1			Greater Rajasthan	1	1	
			States(other than Mysore Hydrabad, Travancore and Cochin.	1			Sind	1	1	
								7	7	

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Statement showing the number of students from various Provinces and States admitted during 1949 to the College of Engineering and Technology, Jadavpur.

Name of course.	Intake as per Co-ordinating Committee recommendations.	Extra Provincial quota.	Suggested allocation of seats in Col. 3. Name of Province (a)	No. of seats (b)	Actual intake	Extra Provincial quota corresponding to actual intake	Admissions from various provinces etc. Name of Province (a)	No. of seats (b)	Nos. actually joined.	REMARKS.
1	2	3	4		5	6.	7			9
1) Electrical and Mechanical Engineering	140	42	Assam Orissa Bihar Hyderabad Vindhya Pradesh Kashmir U.P.E.P.S.U. Unreserved	5 9 10 5 1 2 2 8	140	42	Assam West Punjab Bihar U.P. Assam Travancore Orissa C.P. Berar Delhi Mysore Vindhya Pradesh	3 4 4 4 4 2 7 1 3 2 1 40	3 4 4 4 4 2 7 1 3 2 1 40	The Principal reports that out of the 60 seats allotted to students from Provinces other than Bengal 51 applicants could satisfy the requisite qualification for admission and were duly admitted. He further reports that the recommendations of the Co-ordinating Committee as communicated through the Ministry of Education letter No.F.1-2/48 T-2 dated the 13th June 1949 reached him too late for being implemented for the current session
2) Chemical Engineering	60	18	U.P. Bihar Greater Rajasthan Assam Unreserved	7 5 2 1 3	60	18	Bombay Madras East Punjab Bihar U.P. Assam	1 5 1 1 2 1 11	1 5 1 1 2 1 11	

Statement showing the number of students from various Provinces and States admitted during 1949 to the Alagappa Chettiar College of Technology, Madras University.

Name of course.	Intake as per Co-ordinating Committee's recommendations.	Extra Provincial quota.	Suggested allocation of seats in Col. 3 Name of Provinces (a)	No. of seats (b)	Actual intake 5	Extra Provincial quota corresponding to actual intake 6.	Admissions from various provinces etc. Name of Provinces (a)	No. of seats (b)	Nos. actually joined 8	REMARKS 9
1	2	3	4				7			
1) Chemical Engineering	30	9	Hyderabad	2	24	8	Hyderabad	2	2	Except in the case of the United States of Cochin & Travancore the number of applicants from the areas for which seats had to be reserved was not more than the number suggested for admission and therefore all such applicants were admitted to the course.
			Cochin & Travancore	1			Cochin & Travancore	2	2	
			Orissa	2			Orissa	1	1	
			Centrally administered areas	2			Centrally administered areas	1	-	
			Unreserved	2			Unreserved	2	1	
								8	6	
2) Textile Technology	6 (existing intake)	2	Central Provinces & Berar and Orissa	1	10	3	Cochin and Travancore	2	2	
			Hyderabad, Cochin and Travancore	1				2	2	

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Statement showing the number of students f... various Provinces etc.
admitted during 1949 to the Jalpore Vikra... College of Technology, Andhra University.

Name of course.	Intake as per Co-ordinating Committee's recommendations.	Extra Provincial quota.	suggested allocation of seats in Col. 3 Name of Province (a)	No. of seats (b)	Actual intake	Extra Provincial quota corresponding to actual intake	Admissions from various Provinces etc. Name of Province (a)	No. of seats (b)	Nos. actually joined	REMARKS
1	2	3	4		5	6			8	
1) Applied Chemistry	21 (for degree course in the Dept. of Chemical Technology)	6	Hyderabad	4	12 to III B.Sc. Hons(Tech) class 5 to IV B.Sc. Hons(Tech) classes Post-graduate students 10 to M.Sc. Technology 27	4 III B.Sc. Hons(Tech) class. 2 IV B.Sc. Hons(Tech) class 3 M.Sc. Technology. 9	III B. Sc. (Tech) Class			The Registrar of the University reports that applicants possessing the minimum admission qualifications were not forth coming from the Provinces etc. for which seats had been reserved. He further states that 24 students were admitted in III B.Sc. Hons(Tech) course which includes Chemical Technology and Pharmaceutics and that seats were reserved for other provinces. The University proposes to reserve 12 seats when the full complement of students are admitted. For the present only 6 seats are reserved.
			Cochin and Travancore	4			Travancore	1	1	
			Orissa	1			Orissa	1	1	
			Unreserved	1			Mysore	1	1	
								3	3	
2) Pharmaceutics	18 (for degree course)	6	West Bengal & Assam	1	12	4	Cochin	1	1	The institution did not issue are advertisement for the imformation of candidates as required in Education Ministry's letter No.F.1-8/48 T-2 dated the 13th June 1949 even though some of the seats were filled as late as 15th August, 1949.
			Bihar	1						
			C.P.& Berar and Orissa	1						
			East Punjab and Centrally administered areas	1						
			States and States Union	2						

Statement showing the number of students from various provinces and States admitted during 1949 to the College of Science & Technology, Calcutta University.

Name of course.	Intake as per Co-ordinating Committee's recommendations.	Extra provincial quota.	Suggested allocation of seats in Col. 3 Name of Province (a)	No. of seats (b)	Actual Intake	Extra Provincial quota corresponding to actual intake	Admissions from various Provinces etc. Name of Provinces (a)	No. of seats (b)	Nos. actually joined	REMARKS
1	2	3	4		5	6.	7		8	9
1) Applied Physics	40	12	U.P.	2	30	9	U.P.	1	1	These were no applicants from Bombay, Bihar, Hyderabad, Mysore, Cochin and Travancore States, and only one qualified applicant from U.P.
			Bombay	1			C.P. & Berar	1	1	
			Bihar	1			Assam and Orissa	2	2	
			C.P. & Berar	1			East Punjab & Centrally administered areas	1	1	
			Assam & Orissa	1						
			East Punjab and Centrally administered areas	1			Greater Rajasthan, Madhyabharat & other States	1	1	
			Hyderabad, Mysore Cochin & Travancore.	1			Madras	2	2	
			Greater Rajasthan Madhyabharat and other States	1			Refugees from East Bengal.	1	1	
			Unreserved	3						
2) Radio Physics & Electronics	20	6	Bombay	1	12	4				
			Madras	1						
			U.P.	1						
			Bihar and Assam	1						
			C.P.& Berar and Orissa.	1						
			East Punjab							
			Centrally administered areas and States	1						
							Orissa	1	1	
							Delhi	1	1	
							Madras	1	1	
							Assam	1	1	
							M.Sc. Course			
3) Applied Chemistry	56 (M.Sc.course 36 Soap Diploma course 20)	17 (M.Sc.course 11 Soap Diploma course 6)	Bihar	6	40 (M.Sc.course 25 Soap Diploma course 15)	12 (M.Sc.course 7 Soap Diploma course 15)	Assam	1	1	
			Assam	2			Travancore	2	2	
			Greater Rajasthan & Madhyabharat	3			Delhi	1	1	
			Orissa	2			Madras	1	1	
			Centrally administered areas and other States	2			U.P.	1	1	
			Unreserved	2				6	6	
							Soap Diploma course			
							Mysore	1	1	
							East Punjab	1	1	
							PEPSU	1	1	
							U.P.	1	1	
							Madras	1	1	
							Bihar	1	1	
							Travancore	1	1	
								7	7	

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Annexure 8
Item No. 4 of Agenda.

Eighth Meeting

Co-ordinating Committee of the
All India Council for Technical Education

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MEMORANDUM

The Co-ordinating Committee of the All India Council for Technical Education at its 5th meeting held at Bombay on the 20th April, 1948, recommended that the Central Government should concentrate on the establishment of the two high grade technological institutions and the strengthening of the 14 existing institutions and that for the next two years the Council should not recommend any other institution for financial assistance from the Central Government, The recommendations of the Co-ordinating Committee were endorsed by the Council.

2. The period of two years recommended by the Co-ordinating Committee will expire in April, 1950. During this period the following institutions approached the Government for financial assistance :-

i) Madras Institute of Technology.

ii) National Institute of Engineering, Hoshiarpur.

iii) New Engineering College, Sangli.

iv) B.V.Bhoomraddi College of Engineering & Technology, Hubli.

v) College of Engineering, Ahmedabad.

The institutions were informed of the purport of the recommendations of the Council in this behalf.

3. Two of the above mentioned institutions have again approached for financial assistance and some other institutions may also apply for grants after April, 1950.

4. The scheme for strengthening the old established non-Government Engineering & Technological institutions as recommended by the Council is still in operation and is expected to conclude in 1953-54. It is for consideration

P.T.O.

if any more non Government institutions may be recommended for grants from the Central Government.

5. Brief particulars regarding the institutions mentioned in paragraph 2 of this note, are attached.

I.C.S.

i) MADRAS INSTITUTE OF TECHNOLOGY, CHROMPET.

1. Date of starting the Institute : 17th July, 1949.

2. Score: The institute will impart instructions for the following Courses :-

i) Electronics
ii) Instrument Technology
iii) Automobile Engineering
iv) Aeronautical Engineering
and v) Motion Picture Engineering.

It is proposed to admit students with B.Sc. as minimum qualification and to give them three years training in any of the above mentioned branches of Engineering and Technology. The first year will be common to all these branches.

3. Size : The Institute have got only the Ist year class at the present and 84 students were admitted to this class.

4. Capital Expenditure (upto-date) : Not known; but the Institute is understood to have spent about Rs. 7 lakh in all so far.

5. Existing Recurring Expenditure : (Same as in item 4 above).

6. Assistance sought : A block grant of Rs. 10 lakhs.

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NATIONAL INSTITUTE OF ENGINEERING, HOSHIARPUR

1. Date of starting the Institute :- 11th January, 1948.

2. Scope: At present the Institute is conducting the following courses of instruction :-

i) Four Years Diploma Course in Mechanical and Electrical Engineering with F.Sc. or F.A. with Mathematics as one of the examination subject as minimum qualification for admission

ii) One and a half years Certificate course in Electrical and Mechanical Technology conducted in the vernacular of the region, especially for the sons of the Artisan classes.

iii) One and a half years Certificate Course in Radio Servicing.

3. Size :- There are in all 120 students in the Institute.

4. Capital Expenditure (up-to-date) Not known.

5. Existing Recurring Exrenditure : Not known.

6. Assistance sought : A block grant-in-aid for building and equipment.

I.T.O.

iii) NEW ENGINEERING COLLEGE SANGLI

1. Date of starting the College : 23 rd June, 1947.

2. Scope: The College imparts instructions for the Degree Course in Civil Engineering of the University of Poona.

3. Size : The intake in the 1st year class was 60 students.

4. Capital Expenditure

For November, 1946 to end of December, 1947.
Rs. 8,47,657.

5. Recurring Expenditure: For ten months of 1947-48. Rs.93,372.

6. Assistance Sought. A block grant-in-aid.

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iv) B.V. BHOOMRADDI COLLEGE OF ENGINEERING AND TECHNOLOGY HUBLI

1. Date of starting the College. The institution was stated in 1946 but the Degree Courses were started in June, 1948.

2. Scope: The College affords facilities for instructions in Engineering and conducts courses for the Degree of B.E. (Civil) and B.E. (Elect & Mech) of the University of Bombay for the academic year 1948-49.

3. Size :- The number of admission to the above courses is limited to 75 - (50 for Civil and 25 for Mech and Elect.)

4. Carital Expenditure (Up-to-date) : Not known.

5. Existing Recurring Expenditure : Not known.

6. Assistant sought : A block grant of Rs. Eight Lakhs.

V. COLLEGE OF ENGINEERING AHMEDABAD.

It was proposed to start a chemical engineering department at the College of Engineering, Ahmedabad and the Principal of the College made a request for an Annual Recurring Grant of Rs. 50,000 and Carital Grant of Rs.10,00,000 for starting the proposed Department. The Principal proposed to run Diploma course in Chemical Engineering on All India Basis.

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EIGHTH MEETING.

Annexure 9
Item No. 5 of Agenda.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

The Government of Central Provinces and Berar have requested (vide their letter No. 4385/5298/CXXI dated the 26th September, 1949, copy reproduced below) that the Government Engineering College, Jubbulpore be affiliated to the All India Council for Technical Education for the All India Courses in Engineering and that the All India Council for Technical Education may recommend the College to the Central Government for substantial financial assistance on the same basis on which the Council have recommended grants to other Universities and non-government Technological Institutions.

So far as the question of affiliation of the institution is concerned necessary action is being taken by the All India Board of Technical Studies in Engineering and Metallurgy. In connection with the request for financial assistance for the College, an extract from the proceedings of the meeting of the All India Council for Technical Education held at Calcutta on the 28th April, 1948 is reproduced for information of the Co-ordinating Committee.

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Copy of the letter No. 4385/5298/CXXI dated the 26th September, 1949 from Secretary to the Government, Central Provinces and Berar, to the Secretary, All India Council of Technical Education, Ministry of Education, Government of India, New Delhi.

I am directed to forward the enclosed application from the Principal, Government Engineering College, Jubbulpore. The Engineering College is at present preparing candidates for the Engineering Degrees of the University of Saugor. The College is new and every attempt is being made to provide it with suitable buildings and first-rate equipment. It is necessary that the college should be recognised by the All India Council of Technical Education. The College will also endeavour to train candidates for the various diploma

The Provincial Government desire to utilise the opportunities afforded by this college for developing post-graduate and research work in technological subjects. Government are also anxious that this College should produce personnel of the very best type, which will be of use in the various branches of engineering and of which the country stands in urgent need.

Government will welcome advice and suggestions from the All India Council of Technical Education in regard to standards of instruction, staffing and equipment and such other matters on which the All India Council of Technical Education may consider it necessary to advise. Government also hope as this college will serve one of the urgent needs of the country, viz: training of technical personnel, the All India Council of Technical Education will consider recommending this institution to the Government of India for special substantial financial assistance on the same basis on which the Council has recommended grants to other Universities and Technological Institutes.

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Extract from the proceedings of the 4th meeting of the All India Council for Technical Education held at Calcutta on the 28th April, 1948.

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i) Assistance to Government Technical Institutions.

The representative of the Central Provinces and Berar Government (Dr. V.S. Jha) raised the question of assistance to Government technical institutions for their development. He said that the Central Government had very kindly come forward to assist the Provincial Governments with funds for providing facilities for Basic and Social Education. There was obviously greater reason for the Central Government to give financial assistance to the Provincial Governments for the development of Technical Education. Assistance had been given to established non-government institutions to raise the standard of equipment and instruction and to expand according to plan. Similar assistance should be given to the engineering

colleges and technical institutions maintained by the Provincial Governments.

The request for assistance to government institutions was supported by the Hon'ble Minister for Education, West Bengal who expressed the view that by not doing so, the Central Government had made an invidious distinction between government and non-government institutions. In most cases, the slender resources of the Provincial Governments did not permit them to improve their institutions to the desired extent.

The Chairman advised the members not to move any formal resolution on the subject. He had no doubt that the Central Government realised its responsibility towards development of Technical Education and considered it a matter of great urgency. The Central Government had only recently accepted the Council's recommendations involving a capital liability of Rs.1.5 crores and a recurring liability of nearly Rs. 27 lakhs per annum. He assured the Council that he would take all possible steps to safeguard the interests of Technical Education, no matter where it was imparted, and requested that no formal resolution be passed. The Council accepted the Chairman's suggestion.

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Annexure 10
Item No.6 of Agenda.

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EIGHTH MEETING.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

MEMORANDUM.

Sub:- Pay scales for Engineering and Technological Institutions.

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Clause (vii) of the conditions governing grants to Technological Institutions stipulates that receipients of recurring grant shall bring the salry scales of teaching staff and their qualifications to the level approved by the Central Government in consultation with the Provincial Governments and/ or Universities concerned within three years from the date from which the first recurring grant is made.

At present there is a great deal of disparity in the scales of pay of instructional staff of Engineering and Technological institutions imparting instruction up to the same standard and Government are anxious that such disparities should be removed so far as possible when revised salary scales are introduced at the various institutions in compliance with the condition referred to above.

The question of fixing reasonable salary scales for teachers of various categories was considered by a Committee of the Central Advisory Board of Education in 1944, and more recently by the Scientific Manpower Committee and the University Education commission Relevant extracts from their recommendations are appended hereto for information (Appendix 'A').

The Co-ordinating Committee are requested to recommend the minimum salary scales for the various grades of teachers in Engineering and Technological institutions of the degree standard

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which, together with appropriate dearness allowance etc. to meet local conditions, would enable the institutions to attract, and retain suitably qualified persons for teaching posts.

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Appendix 'A'

Copy of an extract from the report of the Committee of the Central Advisory Board of Education appointed to consider the question of the Training, Recruitment and conditions of service of Teachers in Universities and other institutions of higher education (1944).

An adequate supply of properly qualified recruits for the teaching profession can only be obtained by offering reasonable salaries and reasonable conditions of service; and if these are assured the Committee are persuaded that there will never be a lack of good teachers. In considering the question of minimum salary scales for University teachers, they have had before them a comprehensive list of salary scales prevalent in different parts of India, many of which are in their opinion quite indefensible and the disparity which exists at present cannot possibly be justified. The Committee are of opinion that the prescribing of minimum salary scales is essential, if high academic standards are to be maintained; and after giving the best consideration [illegible] they recommend the following minimum scales for different grades of teachers:-

(a) UNIVERSITY DEPARTMENTS.

Professors **	Readers	Lecturers	Junior Lecturers.
1,000 to 12,50	500-25-800	300-20-500	210-25-300

(b) AFFILIATED AND CONSTITUENT COLLEGES.

Principal*	Readers	Lecturers	Junior Lecturers
800 to 1,000	500-25-800	300-20-500	

(i) In Technical and Engineering Colleges and in subjects which require a certain amount of professional experience.

210-15-300.

(ii) Other Junior Lecturers;

150-15-300

The Committee wish to make it clear that where a College teacher is given or is allowed to retain the title of Professor this should not automatically entitle him for the salary prescribed in the case of a University Professor. It is suggested that in such cases the rate of remuneration should be settled by consultation between the University and College authorities.

The Committee recommend that no distinction should be drawn between teachers on account of their sex, the scales recommended above being applied both to men and women.

27. In Medical, Engineering, Technological and other professional Colleges, Principals and Professors might be given a salary of not less than Rs. 2,000 a month and Readers upto Rs. 1,200 according to their qualifications. It is perhaps regrettable that such distinctions should have to be made, but the +Committee recognise that in these cases salaries must bear some relation to the earnings of the professions outside. The Committee desire to observe, however, that the pay of between Rs.1,000 and Rs. 1,250 which they have recommended for other University Professors is a minimum only, and they would gladly see it raised to, say, some amount between Rs.1,200 and Rs. 1,500, where a University is in a position to pay that amount.

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Copy of an extract from the Report of the Scientific Manpower Committee (June 1949).

Of all the handicaps from which our educational institutions are at present suffering the shortage of teachers is perhaps the worst. We have referred to it in brief in our Interim Report and in the survey report we have described how this is adversely affecting the standard of training in the institutions. The inadequacy of teachers' salaries is the root cause of this deficiency. Even in first grade institutions the salaries of teachers are deplorably low. The salary of a Demonstrator or Tutor averages about Rs. 75 to 100 per month and that of a Lecturer about Rs. 100 to 150 and that of a Professor about Rs. 500 in Universities/and about Rs. 300 to 400 in the colleges. In contrast, clerical and administrative jobs in Government Departments are very much better paid. So also are scientific and technical jobs in Industry and Government Departments. The result has been that there is a steady 'drift' of teachers from Universities and other educational institutions into scientific and technical jobs in Industry and Government Departments, whenever available and when these are not available, into clerical and technical jobs and educational institutions are finding it increasingly difficult to attract suitability

qualified persons for teaching posts. Unless the situation is tackled immediately with a sense of urgency, there is no likelihood of any of our long-term development plans materialising. The problem is capable of solution only on an economic plane since economic factors are at the root of it.

We suggest after mature consideration that the salary scales of teachers of various categories should be as shown below:-

(a) University Institutions, Professional Institutions and other Post-graduate Institutions-

Professors (Senior)	Rs. 1,500 to 2,000
Professors (Junior)	Rs. 1,000 to 1,500
Readers, Assistant Professors and Senior Lecturers.	Rs. 750 to 1,200
Junior Lecturers, Demonstrators, etc.	Rs. 250 to 600

(b) Science Colleges (under-graduate standard)-

Professors	Rs. 600 to 1,200
Assistant Professors.	Rs. 350 to 850
Lecturers, Demonstrators, etc.	Rs. 250 to 500

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Copy of an extract from the Report of the University Commission (December, 1948-1949).

Proposed Scales.- In fixing the salries of teachers we have to keep in mind the consideration that the best talent available in the country should not altogether be absorbed in the services, learned professions or business, and that a proportion necessary for their requirements should be available for the universities. At present the best students of the universities opt for Central services and prepare for Central competitive examinations, their second choice is for Provincial services. This is not as it should be. The attraction for university service should begin to operate as soon as a student starts thinking of his career, because the attitudes and abilities which he develops are governed by this choice. If therefore a youngman at an early stage in his university career makes up his

mind to be a teacher, he will have a different approach towards his studies than that of a student whose main concern is doing well at competitive examinations.

For reasons which have been discussed above it is not possible to fix university salaries on the scales of Central Administrative Services. But there is no reason why they should not compare favourably with those of Provincial services, for if we want really to make our universities laboratories of national thought and nurseries of national leadership in the fields of science, culture and public affairs, then we must induce our best men and women to devote themselves to university service. Their very nature and function demand that universities should not be treated in a narrow parochial or provincial manner, they ought to be regarded as assets of the nation as a whole. They should be gathering centres for teachers and students from all over India and the culture and spirit of India should brood over them. Thus alone will they preserve and foster the unity of the nation. They should be treated in principle as All- India services.

Taking all things into consideration we recommend the following scales of salaries for the different grades of university teachers-

Professors.	Rs.900-50-1,350
Readers	Rs.600-30-900
Lecturers	Rs.300-25-600
Instructors or Fellows	Rs. 250
Research Fellows	Rs. 250-25-500.

We also recommend that special professors may be appointed for a definite term not exceeding five years on Rs. 1,500 p.m. In case of appointments of Professors in technical subjects a personal allowance not exceeding 500 p.m. may be given. When a teacher does exceptionally good work his work may be recognised with a special increment within the grade. For people on the maximum of the grade a special personal allowance may be given in recognition of valuable work. It should be noted that when the existing grades are changed to the proposed ones the present incumbents are not to be automatically promoted but subjected to the scrutiny of Selection Committees.

We give below for comparison the average salaries of these

	U.S.A.	U.K.
Professors.	$ 5,900 p.a.	£1,660 p.a.[2]
Readers	$ 4,800 p.a.	£1,060 p.a.
Lecturers	$ 4,000 p.a.	£ 765 p.a.
Asstt. Lecturers.	$ 3.030 p.a.	£ 475 p.a.

The scales of salries for teachers in affiliated colleges have varied from one part of the country to another and it is desirable that there by some uniformity dependent on the type of work done by the teachers. For colleges which have no post-graduate classes, we recommend the following scales-

Lecturers	Rs. 200-15-320-20-400.
Senior Posts.	Rs. 400-25-600 (two in each college).
Principals	Rs. 600-40-800.

For Colleges which have post-graduate classes, the grades should be-

Lecturers	Rs. 200-15-320-20-400-25-500.
Senior Posts.	Rs. 500-25-800(two in each college).
Principals	Rs. 800-40-1,000.

While these are the ordinary grades, the senior teachers and Principals may sometimes be recruited on special salaries but these should not exceed Rs. 1,250.

Annexure 11
Item No.7(a) of Agenda

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Eight Meeting

Co-ordinating Committee of the
All India Council for Technical Education.

Review of the Activities of the
All-India Boards of Technical Studies.

During the period under report the All-India Boards of Technical Studies made considerable progress, especially in connection with the preparation of All-India Schemes of Technical Education in the various branches of Technology, Commerce and applied Arts. A brief review of the activities of the Boards and requiring the special consideration of the Co-ordinating Committee are placed separately under item 7(b) of the agenda.

(A) Meetings :-

Engineering & Metallurgy Board

(i) Radio Engineering Sub Committee	31.5.49. Bombay
(ii) Examination Committee	27/28-6.49 Calcutta
(iii) Syllabus Sub-Committee	20.9.49 New Delhi
(iv) Engineering & Metallurgy Board	21.9.49. New Delhi

Architecture Board

(i) Examination Committee	20.6.49. New Delhi
(ii) Board of Technical Studies in Architecture	18.8.49. New Delhi
(iii) Regional & Town Planning Committee	25.9.49. Calcutta.

Commerce Board

(i) Visiting Committee for the affiliation of Delhi Polytechnic	18.4.49. Delhi.
(ii) Visiting Committee for the affiliation of City College, Calcutta	30.4.49. Calcutta.
(iii) Examination Committee	9.4.49 & 19.8.49. New Delhi
(iv) Board of Technical Studies in Commerce	5.10.49.

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Chemical Engineering & Chemical Technology Board:

(i) Leather Technology Sub-Committee	20.5.49. New Delhi.
(ii) Examination Commottee	29.6.49. Calcutta
(iii) Syllabus Sub-Committee	10.8.49. New Delhi
(iv) Board of Technical Studies in Chemical Engineering & Chemical Technology.	11.8.49. New Delhi.

(B) Personnel of Boards:

i) Commerce, Textile Technology & Architecture Boards

Mr. K.D.Jalan, Lala Sri Ram and Mr. H.N.Dallas had been appointed as representatives of the Council on the following All India Boards of Technical Studies :-

Mr. K.D.Jalan	Commerce and Business Administration Board.
Lala Sri Ram	Textile Technology, Board
Mr. H.N.Dallas	Architecture Board.

The above gentlemen have now ceased to be members of the Council and hence have also ceased to be members of their respective Boards. It is, therefore, for consideration as to what recommendations should be made to the Council to replace them on the Boards.

ii) Chemical Engineering

Mr. R.Kasturiraj Chetty, Vice-Chancellor, University of Mysore, has been appointed in place of Mr. S.Mohiuddin as representative of the Inter-University Board. Dr. S.R.Sen Gupta has been appointed as an additional member by the Chairman of the Council. Prof. S.K.Roy has been appointed in place of Dr. Venkataraman as representative of A.I.T.I.

Architecture Board :-

Dr. S.R.Sen Gupta has been appointed as an additional member by the Chairman of the Council.

Engineering Board

Dr. Daya Swarup has been appointed in place of Mr. N.N.Sen as representative of A.I.T.I., Commander R.K.Hodgkings has

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has been appointed in place of Commander Daya Shankar. Dr. Sen Gupta has been appointed as an additional member by the Chairman of the Council.

(C) Courses of Study:

Architecture

The Architecture Board has finalised syllabuses and curricula for the All India Diploma Course in Architecture and Regional Planning (post Intermediate standard i.e. 4th and 5th years). Scheme for the final All-India Diploma Examination in Architecture has also been framed by the Board. Consequent on the revision of the syllabus for the All-India Intermediate Course in Architecture, the Architecture Board has revised the corresponding scheme of examinations. These are being placed before the Co-ordinating Committee separately under item 7(b) (ii) of the agenda.

In order to meet the requirements for the training of personnel in the various aspects of Regional and Town Planning, the Regional Planning Sub-Committee of the Architecture Board has decided to prepare schemes of training in Regional and Town Planning on the following lines :

a) full-time course of a standard equivalent to degree in Town Planning: of five years' duration after Matriculation.

b) part-time course of approximately three years' duration for engineers and architects.

The full-time course would be in two stages: the first stage being of three years' duration and the second stage of two years. The first stage of the course would be the same as the course now laid down by the Board for the All-India Intermediate Examination in Architecture. The two year post-Intermediate course would be specially devised for training in Regional andTown Planning.

The part-time course would be specially devised for the training of Architects and Engineers in Regional and Town Planning.

The above schemes of training are being finalized on the basis of Regional and Town Planning courses, available in various Universities and institutions abroad.

In order that due impetus might be given to Architectural Education in the country the Board has prepared a scheme for a typical architectural institution. This scheme will serve as a sort of midel plan which Provincial and State authorities might adopt for establishment of architectural institutions in their respective regions. Copy of the scheme is annended hereto for the information of the Co-ordinating Committee. According to the scheme Provinces and States should establish institutions, which should provide training facilities atleast up to the All-India Intermediate in Architectural stage and students after completing this stage should go to Central Institutions where facilities for further training , that is, for the 4th and 5th years of the All-India Diploma Course would be available. The details of the course of training in the Provincial Institutions would be the same as of the All India Intermediate Course in Architecture.

Chemical Engineering & Chemical Technology.

On a close and thorough examination of what should be the ideal pattern of education in Chemical Engineering and Chemical Technology in the light of modern developments the Board has evolved a new scheme of All India Diploma Course for adoption by the Council. The premise for the scheme is that modern trends in Chemical Education and training show that hardly any clear-cut differentiation can be made between training in Chemical Technology and training in Chemical Engineering so far as basic training in the two subjects is concerned and that one merges into another.

The new pattern of training as evolved by the Board along with the final scheme of four-year All-India Diploma Course in Chemical Engineering is placed separately before the Co-ordinating Committee for consideration, under item , under item 7(b) (i).

Engineering & Metallurgy

The Radio Engineering Sub-Committee of the Engineering Board has worked out details of the pattern of employment of technical personnel in the field of Communication Engineering as shown below :-

Purpose	Category of personnel
I. For Research & Development (a) Radar & Microwave Technique (b) Electrical Communication Engineering.	Persons with high academic qualifications, equivalent to first class university degree in Tele-Communication Engineering.
II. For Maintenance & Execution of works.	Persons with academic qualifications equivalent to an University degree in Tele-Communication Engineering.
III. Supervision	Persons who have undergone a definite course in Radio Engineering of about 2-3 years duration after Matriculation standard.
IV. Specific operational duties performed by technicians, such as a) Wireless Operators b) Servicemen c) Mechanics	Persons who possess practical training in the specific branches extending over a period of one/two years.

It has been decided to prepare schemes of training to meet the requirements of the above pattern of technical personnel.

The Board is finalising schemes for the All-India Certificate Courses in Engineering (five years' full time and 5 years' part-time), and has appointed a Specialist Committee to finalise the syllabus for the All-India Diploma Course in Metallurgy. The Board has also prepared the draft curricula and syllabus for Honours or Advanced Diploma Course in Civil Mechanical and Electrical Engineering. According to this scheme the Advanced Diploma course consists of a certain number of compulsory subjects and an elective and the duration of the course would be about 1400 hours per session.

Commerce

The Commerce Board has appointed a Committee to revise the syllabus of the All-India Certificate Course in Commerce and Business Administration. The Board has also decided to reduce the duration of the part-time Diploma course for those who have taken the All-India Certificate Course in Commerce from 4 to 3 year's part-time.

According to the present All-India Diploma Course in Commerce and Business Administration one year's practical training in approved industrial or commercial organisations is compulsory after training in an institution. In order to define the nature and scope of the practical training the Board had appointed a Practical Training Sub-Committee for preparing detailed schemes of practical training

in the various branches of Commerce so that the practical training of students might proceed along right lines and according to a definite plan . With the help of the Committee and other experts the Board has now prepared practical training schemes in Company Law and Secretarial Practice, Advanced Accountancy and Auditing, and Insurance. Practical training schemes in Banking, Road Transport, water Transport, and Rail Transport are under preparation. It has been decided that whenever students are sent out for practical training, the training establishments should be asked to arrange for the training according to the approved schemes of the Board .

As regards coursesof training for the All-India Advanced Diploma in Commerce equivalent in standard to M.Com of Indian Universities, the Board has decided to refer the question for the present as there are no immediate prospects of introducing such an advanced course at this stage.

Textile Technology:

Schemes for the All India Diploma Course in Wool and Worsted Technology and Silk Technology have been finalized by the experts appointed for the purpose and will be considered by the Textile Board at its next meeting.

Applied Arts

The comprehensive scheme of training in the various branches of Applied Arts and Crafts as framed by the Board and reported to the Co-ordinating Committee at its last meeting has been circulated to all Provincial Governments, Art Institutions in the country and Art experts, for their comments and suggestions for improvement. The comments and suggestions received from various sources will be considered by the Board at its next meeting.

(D) Examinations:

i) The following All India Diploma and Certificate Examinations were held during the period under review:-

A. All-India Diploma Examinations

i) Electrical Engineering
ii) Commerce
iii) Chemical Engineering & Technology.

B. All-India Certificate Examinations

i) Electrical Engineering
ii) Commerce
iii) Intermediate Certificate Examination in Architecture.

An analytical summary of the examinations is given below:-

Name of Examination	Examination Centres	No. appeared	No. successful			No. placed in compartment.
			I class	II class	Pass	
Electrical Engineering	Delhi Polytechnic	65	5	22	17	15
Commerce	Allerrey	78				
	Calcutta	10	114 -	24	2	35
	Delhi	17		26		
	Madras	4				
	Mysore	5				
Chemical Engineering	Delhi Polytechnic	14	-	8	2	4
				10		
All-India Certificate Examinations						
Electrical Engineering	Delhi Polytechnic		10 -	2	3	4
				5		
Commerce	Calcutta	37				
	Delhi	6	44 -	9	-	7
	Mysore	1		09		
Intermediate Exmn. in Arch.	Delhi Polytechnic	38			17	18

Arrangements for the conduct of the examinations at various centres outside Delhi were made through the courtesy of the Vice-Chancellors of the Universities of Travancore, Calcutta, Madras and Mysore.

(ii) Arrangements are being made to hold the following examinations during 1950:-

I) Supplementary All-India Diploma Examination in Electrical Engineering (due to commence on the 17th January 1950).

ii) All-India Diploma Examination in Electrical Engineering.

iii) All-India Diploma Examination in Commerce.

iv) All-India Diploma Examination in Chemical Engineering & Technology

April, 1950.

v) All-India Diploma Examination in Architecture.

vi) All-India Certificate Examination in Electrical Engineering.

vii) All-India Certificate Examination in Commerce.

viii) All-India Intermediate Examination in Architecture.

(iii) The All-India Diploma examinations in Commerce, Chemical Engineering and Chemical Technology and Engineering and Metallurgy this year were held in accordance with the decisions of the Co-ordinating Committee in respect of the number of examiners for each subject of paper, namely, that each paper should have two examiners who should jointly set questions but inderendently value the answer-scripts. Numerous difficulties were encountered in conducting the examinations accord ng to this directive and all the Examination Committees and their respective Boards were thoroughly dissatisfied withthe system of having two independent examiners for each paper. The All India Boards of Technical Studies in Engineering and Metallurgy and Chemical Engineering and Chemical Technology have recommended to the Council that this system should discontinue forthwith and instead the syllabus of subject of each paper should be divided into two sections and each section should have one examiner who sets questions in that section and also values corres onding answers. The All-India Board of Technical Studies in Commerce and Business Administration has also recommended the discontinuance of the system but its recommendation in respect of an alternative system is that irrespective of sections, each paper should have only one examiner who sets questions in that paper and also values answers. The recommendat ons of the All India Boards of Technical Studies in this matter are placed before the Co-ordinating Committee serarately under item 7(b)(iv).

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Affiliation of Institutions:

Commerce

The Affiliation Committee of the All-India Board of Technical Studies in Commerce and Business Administration has decided that before permanent affiliation was granted to any institution, the institution should be inspected by a Visiting Committee. Accordingly, Visiting Committees have been set up for all the institutions seeking affiliation to the Council for conducting All-India Courses in Commerce. +During the period under report the Visiting Committees for the Delhi Polytechnic,Delhi, and the City College, Calcutta, inspected the institutions and their reports are under the consideration of the Affiliation Committee.

Textile Technology

The Textile Technology Department of the Delhi Polytechnic has sought affiliation to the All-India Council for conducting the All-India Diploma Course in Textile Technology. With the approval of the Chairman of the Textile Technology Board the Visiting Committee was appointed to visit the Institution and submit a report. The Visiting Committee inspected the Institution on the 12th August, 1949 and its report is under the consideration of the Board.

Engineering.

Government Engineering College, Jubbulpore, has sought affiliation to the All-India Council for conducting All-India Diploma course in Engineering. With the approval of the Chairman of the Board a Visiting Committee has been appointed to inspect the institution and to report to the Board on the advisability or otherwise of granting affiliation. The Committee is expected to visit the institution shortly.

Architecture:

Bengal Engineering College, Sibpur has sought

affiliation to the All-India Council for conducting Diploma courses in Architecture. With the approval of the Chairman of the Board the institution has been granted provisional affiliation so that the first-year of the All-India Diploma course might be started; and a Visiting Committee has been appointed to visit the institution and send a report to the Board for granting affiliation.

(F) Training in Refrigeration and Air-Conditioning :

The subject of training in Refrigeration and Air-conditioning was considered by the Engineering Board at its meeting held on the 21st September, 1949. The Board noted that courses of training in Refrigeration and Air-conditioning were available at the College of Engineering and Technology, Jadavpur and Bengal Engineering College, Sibpur, where the subjects were taught as electives in the Mechanical Engineering degree course. the general principles of the subjects are also being taught as part of the Heat Engine's course in all Engineering Colleges. The Board also noted that provision had been made for advanced training in the subjects at the proposed Higher Technical Institutions. The Board was of the considered view that when the Higher Technical Institutions were fully established according to plan the bulk of the requirements for trained personnel in the field would be met. Meanwhile, the attention of the Engineering Institutions in the country should be drawn to the desirability of either introducing Refrigeration and Air-Conditioning as an elective subject in the Mechanical and Electrical Engineering courses or providing for advanced training in the subject at post-graduate stage in the College; in this connection the views of the institutions should be sought on the two courses suggested. The Board was also of the opinion that certain limitations in respect of equipment teachers, etc. might under the existing circumstances in the country operate against immediate introduction of courses of training in all the institutions ,

and ...

and, therefore, the development of training facilities would have to proceed in stages according to the resources of the institutions concerned. In consideration of this situation the Board recommended that it would be best in the initial stages if the necessary training facilities were organised in two or three selected institutions on regional basis.

As regards the training of operators for the maintenance, servicing etc. of refrigeration and air-conditioning plants, the Board was of the view that the necessary training facilities could best be provided through the Ministry of Labour under their Technical Training Programme. It was recommended that this aspect of the question should be referred to the Ministry of Labour (Directorate-General of Resettlement and Rehabilitation) for examination and necessary action.

(G) Part-time Instruction for C.P.w.D. employees for the All-India Diploma Courses.

In view of the recent relaxation in the rules and regulations governing the Associateship Examination of the Institution of Engineers (India) especially in respect of age limit of candidates, the Board recommended that part-time instruction for C.P.w.D. employees should be organised in the Delhi Polytechnic, Delhi for the Associateship Examination of the Institute of Engineers (India) rather than for the All-India Diploma in Engineering. This matter is being placed separately before the Co-ordinating Committee under item 7(b) (vi).

(H) Private Candidates and All-India Examinations:

At the instance of the All India Council for Technical Education the All-India Boards of Technical Studies in Commerce and Business Administration, and Engineering & Metallurgy, examined the question whether or not students who have not undergone instruction for the All-India Diploma courses at an affiliated institution either on part-time or full-time basis be permitted to appear for the All-India Diploma Examination. It was the unanimous opinion of all the Boards that it would not be in the best interests of maintaining proper standards of technical

education xx in the country to permit such candidates to appear for the All-India Diploma Examinations.

J. Functions of All India Boards vis-a-vis Regional Committees

The All India Board of Technical Studies in Commerce and Business Administration at its meeting held on the 5th October, 1949, reconsidered the decision of the Co-ordinating Committee that the functions relating to the conduct of the All-India examinations should be delegated to the Regional Committees. The Board, strongly recommended to the Co-ordinating Committee that the latter's decision should be reviewed and that the conduct of the examinations of the Council be continued in future as the main responsibility of the Board providing for whatever executive help Regional Committees might be able to give to the Board in this regard. This matter is being separately placed before the Co-ordinating Committee under item 15(a) (ii).

ICS.

ESTABLISHMENT OF SCHOOLS OF ARCHITECTURE.

At present there is a great scarcity of qualified Architects all over the country to assist not only the Government but other public authorities and the public, with the planning of buildings, either for official use or for industrial purposes or for housing. Whereas in small countries like England there are over 15,000 practising Architects, in India there are hardly 400 qualified architects to serve the vast needs of the country.

In India, the architectural profession is not yet established, and is very little understood; work which is normally done by architects in other countries is here done by Engineers.

The training of Engineers is so very wide that the amount of time given to training in planning and design of buildings, so as to obtain the largest amount of useful space at the smallest possible expenditure, is either very little, or is nil.

That training is given to architects only, who give five full years to this one single subject of designing buildings, whereas x with Engineers it generally forms a very small part of a 3 years course.

An architect in India is generally, thought of as being concerned only with the appearance of buildings, and therefore with beauty, which is thought of as being something of an expensive luxury.

This is an entirely incorrect understanding of the work of an Architect. On the contrary, an architect is trained to plan so as to obtain the maximum space, properly arranged and organised so as to provide the utmost convenience; he is also trained to do this with the utmost economy in material, and at the same time, to build in such a manner as to give pleasure, not by adding costly ornament, but by considering xx broad simple matters such as symmetry, balance, proportion and light and shade, which make all the difference to the appearance of a building, but are altogether outside the training of an Engineer.

All the Governments both Central and Provincial have various schemes of development in hand or in contemplation which include buildings, and there are very few qualified architects to help the Government in designing those buildings. The demand is not only for architects but also for other trained technical personnel; it is increasing year after year, and there are very few channels through which this great need can be met.

With the object of meeting this demand, in 1945 the Government of India appointed an All India Council for Technical Education to co-ordinate and bring into effect schemes for training technical staff in various subjects, one of the subjects being Architecture and Regional Planning. The Government of Bombay also appointed a Committee on Art Education, in 1946, with a view to advise the Government how Art Education, including Education in Architecture, could be developed in the Province of Bombay. The latter Committee made its report in 1947, which has been published as a Brochure by the Government of Bombay, and the Government of Bombay is taking steps to implement the recommendations of the committee as far as Architectural Education is concerned.

The Council of Technical Education has with the help of its Co-ordinating Committee established several Boards of Technical Studies in the various departments of technical education; one of such Boards is the All India Board of Technical Studies in Architecture and Regional Planning. This Board in Architecture inter-alia has prepared a scheme for Architectural education throughout the whole of India, and the syllabus as framed by this Board is enclosed herewith for ready ref rence. Appendix (I).

It will be seen from a study of the Constitution of the Board, and the Syllabus framed by it, that this Board of Technical Studies in Architecture and Regional Planning is an examining body, and it is left to the various provinces and states in India to start Schools for training in Architecture

and get such schools affiliated to the Board. The Board will advise the sponsors regarding the equipment, studies, staff etc., and if the arrangements made are to its standard, will recognise the school for preparing students for appearing at the examinations in architecture held by it.

While the syllabus framed is capable of being adopted and varied to suit the needs of the individual Provinces, it is the intention of the Board that the standard of education in the various subjects as laid down in the syllabus shall be strictly observed. When schools are founded in the various centres and provinces, the Regional Committees of the All India Council for Technical Education will conduct the examinations and keep the Board in touch with the various schools of Architecture in the Provinces.

Here it may not be out of place to reiterate that there is a difference between Architectural Education and Engineering Education, which has been very well emphasised in the report of the Committee on Art Education appointed by the Government of Bombay under Clauses 75, 76 and 77 of the Committee's report; copies of these clauses are given in Appendix No. 2. It is, essential that Architecture and Engineering should not be confused; at the same time it is to be remembered that the services of the Engineers will be required in connection with many Architectural projects, and Architects and Engineers must also co-operate with each other, but the distinction between them must always be remembered.

It will generally be of no use to attach Schools of Architecture to existing Engineering Colleges in the various States, or to tack a smattering of Architectural knowledge on to syllabuses of Engineering Education and call it Architectural Education. There are however, certain subjects which may be temporarily taught to both sets of students till permanent arrangements can be made for separate lectures.

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This is possible as an interim measure, because while constructing the various types of buildings the Architect must look not only to the Art side, but must look to the practical conveniences given by the building, whilst the Engineer looks at it from the point of view of strength and stability only. Some few parts of the subjects could therefore be taught jointly.

As will be seen from the Syllabus, the training is spread over a period of 5 years, with a teaching period of 1,200 hours for each year. The syllabus is laid down keeping in view the requirements not only of the country as a whole but also that the standard maintained in India should not in any way fall short of the standards prevailing in other countries. It may be noted here that the Royal Institute of British Architects, which is recognised as the premier body of professional Architects, has laid down certain standards for Architectural Education, and the syllabus as framed has kept in view this fact, and kept the standard upto the standard required by the Royal Institute of British Architects, keeping however in mind the growth of Traditional Architecture in India.

The Board has altered the syllabus in certain respects to suit local conditions in India. One new School has been established in Delhi, and it is the earnest wish of the Board that other provinces may start schools at as early a date as possible.

Apart from the syllabus, the schools will require staff to teach the various subjects. Unfortunately there are very few trained teachers who can impart Architectural Education, and teachers will have to be trained for imparting Architectural Education. Until that can be done, which time is a long way off, the training in Architecture must

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be given by private practising Architects in the various Provinces who can bring their practical knowledge to bear upon the instruction given by them.

It is therefore very essential that in running a school of Architecture the help of practising Architects must be sought to a very large extent. If the teaching is left entirely in the hands of a permenent staff there is a danger that the training will become academic and get into a rut, and it will be very difficult for students to get out of it when they come to practice on their own account. It is, therefore, suggested that in establishing a school some measure of compromise must be found between running the school on a fully permanent staff and on a part-time staff.

It is universally accepted that it is necessary to have a school with full 5-year curricula; but considering prevailing circumstances in the country it is suggested as an interim measure that architectural schools may be started with 3 year curricula and arrangements be made for the students who satisfactorily complete the 3 year course to be sent until 5 year curricula is introduced for completing their studies to other schools which have been established for some time and have facilities for giving instruction for the other 2-year course. Such established instituting are at present only two, ~~are~~ one in Bombay and the other in Delhi.

The staff necessary for running such 3 years' courses would be (1) The Head of the School (2) One or two Assistants and the necessary clerical and other staff. Part of the teaching could be given by Architects practising in the vicinity of the schools. The Visiting staff or the private Practising Architects, may be paid an honorarium of Rs. 25 per lecture.

The accommodation required for running the 3 years' classes would be about 3 large studios to accommodate 30 students each, with two Lecture Rooms, a Library, and a common room, and a large store Room and Offices for the staff.

In the beginning a start may be made with suitable existing accommodation provided the rooms are properly lighted, instead of spening money on the construction of new buildings. The location of

of the Schools should be in the principal City of the Province or where-ever the largest number of practicing Architects may be available for part-time duties. The size and usefulness of the school will depend partly on the Head of the School and partly on what visiting staff is available from Practising Architects. The latter of course will have to make some sacrifice of time and money in helping the activities of the School, but that would be time spent for a useful object in the spreading of Architectural Education.

The Library must contain not only books on Ancient Architecture but also books on Modern subjects including books on modern construction. In addition to books on Architecture there must be books on General Arts because Architecture is one of the Arts and it cannot be separated from Art Education. Lists of books could be prepared if the move to start a school meets a favourable response from the Government concerned.

In addition to the regular curriculum of the School, Excursions to places of Architectural interest inside and outside the Province must form one of the subjects, and the intention should be to visit places of ancient Architecture, not only to study them but to prepare measured drawings of historical buildings with their details and points of importance.

As far as the revenue side of the Scheme is concerned it may be remembered that a school of Architecture cannot directly pay its way, as is the case with all educational institutions, but the indirect way in which the students may benifit are varied, and in the long run the money spent on Architectural Education will be handsomely repaid. No classes should contain more than 30 students and the fees which may be charged would probably be Rs. 150/- to Rs. 200/-/- per year per student.

The approximate non-recurring expenditure for starting a school of Architecture for a 3 years course would be Rs. 2,50,000/- and the recurring annual expenditure would

be about Rs. 50,000/- of which Rs. 20,000/- can be recovered by way of fees.

The first necessary step is to formulate a proposal, showing what facilities could be provided, what permanent staff is contemplated, and how far this staff could be supplemented by architects in private practice. When that proposal has been formulated, it should be submitted to the Board of Technical Studies in Architecture and Regional Planning, which help gladly will be given either by the office bearers or by the permanent staff of the Board.

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APPENDIX I

Syllabus for the All India Diploma Course in Architecture, as approved by the All India Boards of Technical Studies in Architecture and Regional Planning.

(Appendix (2)

"Engineering" comprises a wide field of activity which has a precise scientific and mathematical basis and application and is ordinarily called the "science" of Engineering. According to specific field of activity we have civil, structural, hydraulic, sanitary, electrical, mechanical and such other engineering branches and again there is specialisation in roads, bridges, acqueducts, canals, docks, harbours, lighthouses, marine engines, machinery and drainage. As "science" the whole outlook, grounding and training in these various branches of engineering is essentially different from that of architecture which in its broader sense includes Town- Planning. In engineering matters the strength of materials and safe economical construction are primary considerations, while in architecture in addition to strength and utility, human, aesthetic and cultural value have necessarily to be taken into consideration. With the progress of time there is a general increase of "Engineering" services in buildings with a parallel increase in the variety of building materials made available and in common use at the present day. The structural and civil engineers are collaborators and co-operators in matters technical in satisfactory solution and completion of a big and complicated Architectural Project. The field and scope of work of an Engineer is different from that of an Architect; it naturally follows, therefore, that those who desire to be trained as architects and are to be qualified as Architects require a different training from those who aspire to become qualified engineers in one or other of its varied branches.

76. Architecture (including Town-planning) is, necessarily an Art in its own right, and is a cultural, aesthetic knowledge and of human activities. It makes use of certain applied services viz. structural engineering, hygiene and sanitation, heating, lighting and ventilation, etc., but these applied services are part of its means, they are never its ends. Hence scientific knowledge and advance is the maid and

not the master of the Art of Architecture.

For mere use and safety an engineer or a contractor even can raise a structure, it is only an architect who by his specialised knowledge in "designing" is capable of combining into an aesthetic whole, a programme of requirements, materials and construction, which distinguishes and marks the structure as architecture. The architect in the course of his training which is long and arduous, is trained to give ordinary materials significant form and beauty, which cannot be done by bedecking an engineering structure with ornament and decoration.

77. The architectonic attitude, therefore, cannot be implanted in the make-up of an engineer by the introduction or grafting of a few architectural subjects in the training of an engineer to do the work and practise the profession of an architect. It should be noted that the very basis of the engineering science and the art of architecture are fundamentally different. The man has to be caught when young with a strong artistic bent of mind and temperament to be trained as an architect. Fine perception of form and beauty is difficult to be ingrained into a matter of fact and practical bent of mind which thinks in terms of materials and practical utility rather than in terms of human values. The importance and significance of building traditions which are an outcome of religion, climate, local materials, arts and crafts, history and social conditions are not included in the training of Engineers.

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Annexure 12.
Item No. 7(b) (i) of Agenda Eight Meeting.

Co-ordinating Committee of the
All India Council for Technical Education.

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MEMORANDUM

The Co-ordinating Committee at its last meeting held on the 12th April, 1949, arrroved the All India Diploma Course in Chemical Technology as framed by the All India Board of Technical Studies in Chemical Engineering and Chemical Technology at its third meeting. At its fourth meeting held on the 11th August, 1949, the All India Board of Technical Studies in Chemical Engineering and Chemical Technology observed :-

(a) that modern trends in Chemical Education and Training show that harily any clear-cut differentiation can be made between training in Chemical Technology and training in Chemical Engineering, so far as Basic Training in the two subjects is concerned and that one merges into another. A chemical technologist should compromise training both in general chemical technology and in principles of chemical engineering or in any of the special field of chemical industry, that the nature and scope of training show marked difference.

b) the existing diploma course in chemical technology as framed by the Board at its third meeting comprising three years instruction at College followed by one year of practical training hardly conforms to the above pattern. Its syllabus includes so much of Chemical Engineering that it is hardly justified to refer to it as Chemical Technology Course, specially when a separate course in Chemical Engineering

has been framed by the Board. To some extent the college course is also unbalanced, in that, in a three year period too much of various subjects has been included which cannot be covered in the allotted period,

c) no course in Chemical Engineering or Chemical Technology of a standard equivalent to University degree and having proper emphasis on practical aspects can be covered in less than 4 academic years in college. The four year diploma course either in Chemical Engineering or in Chemical Technology should be divided into two stages, namely:

i) the first stage called the 'Basic Course' of three years duration during which the students are given the necessary training in the fundamental sciences, workshop, drawing, general chemical technology and principles of chemical engineering:

ii) advanced stage or specialisation course of one year duration during which the students are given advanced training either in Chemical Engineering or in one of the several branches of Chemical Technology, such as technology of oils, pigments, fuels and furnaces etc.

The Board further observed that the above pattern of training is essential in order to train properly chemical engineers or chemical technologists. Both for chemical engineers and for chemical technologists the 'Basic Course' should be common and only in the advanced or 'specialisation' course stage the students should chose their particular line of specialisation.

In view of the above the All India Board of Technical Studies in Chemical Engineering and Chemical Technology decided to frame courses for the All India Diploma in Chemical Engineering and the All India Diploma in Chemical Technology providing for four years of instruction in college with five months of practical training sandwiched. The Board further decided to recommend to the Co-ordinating Committee to adopt the new scheme in place of the All India Diploma Course in Chemical Technology approved by the Committee at its last meeting held on the 12th April, 1949.

The above recommendations of the Board are placed before the Co-ordinating Committee for its approval.

The scheme for the proposed All India Diploma Course in Chemical Engineering as laid down by the Board in accordance with the above pattern of training is appended hereto for the approval of the Co-ordinating Committee.

The course as framed by the Board is of four years' duration, the first three years being the basic course and the last year advanced course in Chemical Engineering. Five months' practical training during the course is compulsory of which two months not before the end of the second year in a Mechanical Engineering Workshop and three months not before the end of the third year in a Chemical Engineering Workshop. It is to be particularly noted that the course is of 4 years duration, including 5 months practical training, taken during the course and no separate post-institutional practical training has been provided for. The minimum admission qualification for the course is Intermediate in Science with Physics, Chemistry and Mathematics or its equivalent.

Detailed syllabus for the 4 year Diploma Course in Chemical Technology in accordance with the new pattern are being laid down by the Board.

FCS.

SYLLABUS.

FIRST YEAR

English Composition.
(Tutorial Class)

Hours. 52.

Candidates should be able to write an essay on a topical subject and also be able to give preci and explanation from an unseen passage.

Inorganic Chemistry: Hours. 52

The laws of stochiometry. Equevalents of the elements and their determination: valency. vapour density, Avogadro's hypothesis and molecular weights. General methods of atomic weight determination, with selected examples illustrating the modern, experimental technique involved. Isotopes and their significance. Classification of the elements, systematic study of the elements and their compounds accordin to the periodic classification.

Practicals:

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Preparation and purification of typical inorganic substances illustrating principles given in the lectures. Principles of qualitative analyses, including dry methods. Calibration of apparatus. Selected Volumetric and gravimetric exercises.

Organic Chemistry : 52 hours.

Introduction to the nature and nomenclature of organic compounds . The principles underlying organic reactions with particular reference to general synthetic methods and to typical methods in use for ascertaining structure, industrial methods of purification, examination and analysis. The main properties, applications and methods of manufacture for the production of industrially important paraffins olefines, glycerols, carboxylic acids, hydroxy acids, esters, glycols, acetylenes, alcohols, ethers, ketones, fatty acids, mono-and poly-saccharides, amines and other aliphatic nitrogenous compounds.

Physical Chemistry: 26 hours.

Structure of matter; atoms and melecules. Elements of radio-

activity. Properties of gases; kinetic theory, equations of state, critical constants, Joule- Thomson Effect, liquefaction of gases, theory of corresponding states, gaseous diffusion.

Laws of Thermodynamics- first and second laws-thermo chemistry. Dilute solutions of non-volatile solutes; vapour pressure, boiling point, freezing point, determination of molecular weights.

Laws of mass action and Chemical Equilibria-partition coefficients- Reaction kinetics-order of reaction.

Catalysis- principles and main applications.

Heterogeneous equilibria- phase Rule-Binary systems only.

Physics: hours 52.

General Properities of Matter:

Particular emphasis should be devoted to viscosity, surface tension and diffusion.

Heat:

Scales of temperature. Thermometers. Pyrometers. Methods of finding the coefficients of thermal expansion of solids, liquids, and gases. Relation between pressure, volume and temperature. Properties of gases and vapour Isothermal and adibatic expansion Change of State. Fusion. Evaporation. Boiling. Liquefaction of gases. Measurement of quantity of heat. Specific heat. Latent heat. Formation of cloud, fog, and dew. Dew-point. Hygrometry. Law of transmission of heat by conduction convection radiation & Heat as a form of energy. Conservation of energy. Mechanical equivalent of heat, and simple methods of approximately determining it.

Electricity and Magnetism:

Properties of magnets. Simple phenomena of magnetism and of magnetic induction (influence). The magnetic field; lines of Force The law of magnetic force. Magnetic moment. Intensity of magnetisation and magnetic induction. The earth as a magnet. The magnetic properties of iron and the elementary laws of the magnetic circuit.

The simpler phenomena of electrified bodies. Conduction and insulation. Electrification by friction and by induction.

Distribution of electrification on conductors. Electric field; strength of field. The law of electric force. Potential. Capacity. Energy of charge. Electrometers.

Electric current Production of continuous currents by primary cells. Electrolysis. Faraday's laws. Voltmeters. Secondary cells. Magnetic field of current. Magnetic measurement of current. Galvanometer Amperemeter; and voltmeter. Work done by electric current. Electro-motive force. Ohm's law. Resistance, measurement of resistance and potential difference. Wheatstone's bridge. Potentiometer. Heating effects of current. Thermoelectric couple. Action of magnetic field on circuits conveying currents. Electro-magnetic induction. Faraday's law. Lenz's law. Elementary principles of the dynamo and transformer.

Practicals: 78 hours.

Determination of surface tension, viscosity of liquids. Use of thermometers and determination of fixed points. Methods of finding the coefficients of thermal expansion of solids and liquids. Variation of volume of gases with pressure. Variation of pressure and volume of gases with temperature. Simple methods of determining melting and boiling points. Specific heat and latent heat of fusion and evaporation. Determination of dew-point.

Tracing the lines of force in the neighbourhood of a magnet. Comparison of magnetic moment and fields. Measurement of earth's field. Permeability. Electro-static experiments. Electric current and electro-magnetism. Heat effects of electric current. Joule's equivalent. Measurement of electro-chemical equivalent. Measurement of resistance. Comparison of electro-motive force by potentiometer method. Comparison of currents. Faraday's law of magnetic induction. Comparison of condensers.

Mathematics: (66) Hours 78.

Analytical geometry of the straight line and the Circle; elementary properities of conic sections in their simplest form.

Differentiation; application to maxima and minima, and to tangent and normals; partial differentiation; small increments; Taylors and Maclaurins theorem; power series, exponential and hyperbolic functions;

Integration, application to arcs, areas, volumes, surfaces and volumes of revolution, first and second moments of plane curves and areas; Pappu's theorem; ordinary differential equations with constant coefficients, the linear equation, simple partial differential equations, with applications to heat conduction. Numerical and graphical integration and differentiation. Probability and theory of errors; tolerance.

Drawing I 78 Hours.

Construction of scales; construction of curves; orthographic and isometric projections; sections; conventions in mechanical drawing dimensioning; working drawing of bolts, nuts, studs, rivetted joints pulley, brackets, couplings etc.

Principles of Engineering Mechanics:- Hours 52.

Displacement- Velocity- Acceleration-Graphical representation of displacement, velocity and acceleration, - Vector quantities- Velocity, acceleration etc., considered as vectors- composition and resolution of velocities- relative velocity-compostion and resolution of acceleration. Angular Velocity and Acceleration.

Motion under gravity- motion on inclined.- planes-projectiles inertia, laws of motion- weight-momentum, units of force-motion of connected bodies, Atwood's machine.

Work, graphical representation of work; power, energy, principle of work, conservation of energy.

Circular motion, centrifugal and centripetal forces, motion in a curved track, conical pendulum, simple harmonic motion, process in simple harmonic motion, alternating vectors, simple pendulum.

Concurrent forces, composition and resolution of forces-triangle of forces- polygon of forces- analytical and graphical methods-

physical independence of forces. moment of a force-work done by torque- sliding friction- angle of friction-action of brakes- friction and efficiency of screw.

Statics of rigid bodies-parallel forces-moments-principle of mements-couples-conditions of equilibrium, analytical methods methods of sections.

History of Civilisations: 52 hours.

I. Ancient - Assyria, Babylonia, Egypt, India, China, Greece & Rome.

II. Mediaeval - Rise and expansion of Islam.

Europe between the fall of the Roman. Empire and the rise of the National States in 15th Century; Renaissance and Reformation; Muslim India; Influence of Hindu and Muslim culture on each other.

III. Europe since the 16th century; discovery of new lands; colonial wars; Industrial Revolution; French Revolution; Ideals of Nationalism and Democracy; Fermentation in the 19th Century World War I; New ideals and rise of new forces; World War II.

IV. Impact of European Colonial Policy on the East- Dutch English and French Empires; Regeneration of the conquered peoples in the 20th Century.

V. Near and Middle East from the fall of Constantinople to the first World War: Regeneration after 1919.

VI. Openning up of China and Japan by the West: Reorganisation of Japan; Chaos and disorder in China; Rise of Japan and Sino- Japanese relations.

VIII. U.S.A.- Colonial days, Independence, Munro Doctrine Development in the first half of the 19th Century; Civil War: Rapid developments in the second half of the 19th Century ; Entry into the Colonial field; Dollar Diplomacy and Dollar Empire.

2nd Year.

	Lectures	Practical
Inorganic Chemistry	52 (Quantitative)	78
Organic Chemistry	52	78
Physical Chemistry	78	78
Applied Mechanics and Strength of Materials	52	-
Mathematics.	52	-
Drawing II		78
Electrical Engineering	78	52
Workshop Practice	-	78
Political Science (Optional for the Institute)	52	
	416	442
Total:	858.	

Second Year.

Inorganic Chemistry:- 52 Hours.

The production and uses of the chief industrial gases with special reference to the principles involved. Examples in detail of dry and wet methods of preparing selected elements and compounds with a view to comparing laboratory methods with production on the manufacturing scale. Chemistry of metal extraction and refining and of such industrial products as cements, abrasives, glass, pigments, and boiler feed water conditioning. Methods of expressing results of analyses of raw materials including water and industrial products together with their interpretation.

Practicals: 78 hours.

Selected volumetric and gravimetric exercises, including gas and water analysis, selected volumetric and gravimetric analysis involving separations.

Organic Chemistry: Hours 52

The aromatic and heterocyclic series should be dealt with in a manner similar to the first year course with special reference to nitro c compounds, amines, sulphonic acids, phenols, aldehydes, carboxylic acids, and other intermediates of the benzene, naphthalene, anthracene and other series.

Practicals: Hours 78.

Methods of separating organic mixtures. Testing purity. Identification of most important types. Preparation of substances chosen to illustrate basic processes, performed on a strictly quantitative basis, a careful balance being made of all raw materials and finished products.

Physical Chemistry:- Hours 78

The colloidial state-methods of preparation and characteristics of colloids, properties of colloids.

Electrochemistry;-electrical conductance, Faraday's laws.

Electrolytic dissociation, transport number, specific, molar and equivalent conductance, migration of ions, electro-lytic equilibrium and hydrolysis. Ionisation of water, theory of indicators.

Electromotive force; relation between electrical energy and chemical energy; electrolytic solution pressure; single electrode potentials; electrolysis and polarisation; decomposition voltage; energy efficiency; concentration cells; normal electrode potentials; oxidation-reduction elements; primary cells; secondary cells.

Practicals: Hours 78.

Determination of molecular weight (1) Victor Meyer (2) Boiling point methods, (3) Freezing point method (4) Molecular refraction.

Thermochemistry (1) Determination of heat of neutralisation. (2) Heat of combustion.

Chemical Kinetics; The velocity of simple reactions.

Polarimetry and the kinetics of inversion of cane sugar.

Miscibility of liquids- phenol water system; partition coefficient; use of thermostats, steam distillation.

Transition points and their determination.

1. Calibration of instruments and measures.
2. Reversible cells and measurement of E.M.F. Potentiometric titrations.
3. Buffer solutions-measurement of P.H. Hydrogen electrode, Quinhydrone electrode and glass electrode.
4. Measurement of conductivity-conductometric titrations.
5. Electro-analysis. Assayings of alloys.
6. Refractometry
7. Electroplating.

Applied Mechanics and Strength of Materials. 52 hours.

Properties of engineering materials, stress, strain; compressive tensile, shear, and bearing stresses; stress-strain diagrams; Hooke's law Modulus of elasticity, modulus of rigidity. Poisson's Ratio; temperature Land stresses, composite bars; dead, live and shock loads, factors of safety, working stresses, work, resilience, strength and efficiency of riveted joints; bending moments and shearing forces in beams.

Centre of parallel forces; centre of mass; centre of gravity; different states of equilibrium; theorem of Guldinus or Pappus; moment of Inertia; radius of gyration; laws of rotation of rigid

bx

body; kinetic energy of rotation; kinetic energy of rolling body.

Hydrostatics; pressure at a point and on a surface. pressure gauges, hydraulics; fluid friction, flow through orifices, notches and pipes. Beams, Theory of Bending; B.M. and S.F. in Cantilever; simply supported and overhanging beams. Elementary ideas of R.C. beams coulmns and structs torsion of shafts.

Graphic statics; Bow's notation; funicular polygon; bending moment and shearing force diagrams; stress diagrams of roof trusses.

Law of machines; velocity ratio; mechanical advantage and efficiency of simple machines such as Jack Screw, Pulley Blocks, wheel and axle, worm and wheel.

Friction in bearing; belt friction; transmission of motion by belts; ropes and chains, friction gearing, spur gearing, wheel train. Rack and pinion. Crank and connecting rod mechanism, quick return motion, cams, ratchets.

Mathematics: Hours. 52.

Graphs of elgebraic, exponential, and logarithmic functions, graphical solutions of equations, Newtons Method of solutions; Use of logarithmic and other special types of graph paper for fitting empirical curves to observed data.

Graphical - computations. functional scales; setting up and use of slide rules. Net work charts. Simple types of nomograms; parallel scales, line coordinate charts, Z type and concurrent lines type charts etc., for computation of values of functions of two or more variables.

Note: Mathematical exercises and the applied aspects should be selected as far as possible with a bearing on technology and chemical engineering.

Drawing II.- 78 hours.

Machine sketching; making of assembly and detailed drawings from sketches reading and checking of drawings; empirical design of standard machine parts.

Electrical Engineering:- 78 hours.

irect current circuits; electromagnetism; direct current generators and motors; alternating current circuits; alternating

current machines; direct and alternating current power systems; electronic tubes and circuits; heating; welding and electro-chemical processes; electrical illuminations; electric motor applications and control; industrial wiring systems; electric power-economics and maintenance; electrical communication.

Practicals:- Hours 52

Experimental laboratory work illustrating the principles of operation, devices, and equipment studied in the theoretical classes mentioned above.

1. Magnetisation curve of a separately excited D.C.Generator.
2. Magnetisation curve of a shunt excited D. C. Generator.
3. Load tests on D.C. Generators- shunt and compound
4. Running of D.C. motors- shunt, series and compound.
5. Study of an A.C. series circuit.
6. Study of an A.C. parallel circuit.
7. Measurement of power in a single phase. A.C. Circuit.
8. Measurement of power in 3 phase circuit by means of two wattmeters.
9. Load tests on a transformer.
10. Open circuit characteristics of an alternator. Synchronising an alternator.
11. Transformer connections, singlephase, three phase Scott connection Determination of the ratio of transformation.
12. Running of an induction motor.
13. Running of a rotary convertor.

Workshop Practice:- 78 hours.

Use of hand tools for wood and metal work. Chipping, filling, scrapping and screwing. Use of taps and dies, bolts and nuts, various locking devices, rivets fitting keys, cotters, and pins. Fixing wheels and pulleys in position. Screwing of pipes and jointing by socket, flange running and expansion joints. Packing a stuffing box. Fitting cup, U, or hat leathers. Use of lifting tackle-blocks, jacks, slings, lashings, etc. Adjusting and levelling of shafting and bearings. Cutting and lacing of belting, splicing of rope for rope drive. Soft soldering. Lead burning. Machining, drilling, boring, boring & Welding.

turning and milling.

Political Science: Hours 52.

Theory and forms of government:-

I. State, Government, Nation, Functions of the State; Organs of Government and Separation of powers; Forms of Government types of constitution; party system; franchise and elections; local government, civic duties and responsibilities.

II. Constitutions of (1) Britain, (2) India, (3) U.S.A., and (4) U.S.S.R.

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3rd Year.

No. of Hours per year.

3rd Year.	Lectures	Practical.
Chemical Technology- Inorganic & Organic	78	-
Industrial Stoichiometry	52	
Advanced Physical Chemistry	26	
Introductory Chemical Engineering	104	156
Heat Engines.	52	
Technical Analysis	-	156
Machine Design Drawing	-	78
Elements of Economics and Industrial Administration.	52	-
	364	390

Total: 754

Maximum No.of hours per year 860
26 weeks per year 33 hours per week

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3rd Year.

Chemical Technology-
Inorganic & Organic:- 78 hours.

Industrial chemical processes studied from the point of view of both the chemical reacitions forming the basis of the process, and the plant necessary for carrying out these reactions. Development of interrelationships of the different industries as to raw materials, sources of energy, and standard types of appratus and a general survey of the field obtained.

The following industries to be studied in the light of remarks, given above.

Inorganic Technology:

Industries based on (i) common salt-hydrochloric acid, sodium carbonate, caustic soda, chlorine, bleaching powder. Potassium and sodium chlorates, (ii) Sulphur and Sulphur compounds- Sulphuric Acid, Sodium hydrosulphite, sodium sulphite, Sodium thiosulphate, Alums. (iii) Lime Stone, Clay and Sand-Glass and Silica ware, Safety glass, sodium silicate, lime, cement, earthenware, ceramic raw materials, General methods of manufacture, Glazed Pottery, Fireclay goods, Fayence.

Industrial Gases:- Hydrogen and Oxygen, Synthetic ammonia and its uses, synthetic nitric acid, carbon dioxide, carbon monoxide.

Metallurgical processes:- Nickel, copper, gold, electro-metallurgy sodium aluminium and magnesium. Iron and Steel.

Borates and Phosphates:- Phosphorus, superphosphates and fertilisers, Borax.

Pigments and Paints:- White Pigment and extenders, lithopone, white lead, zinc oxide, titanium oxide, paints and varnishes.

Technology of water and water analysis:-

Organic Technology and Biochemical Industries:-

Oils, fats, and Waxes, Refining and Hydrogenation, Soap Boiling, Glycerine.

Paper, Artificial Silk.

Coal, Distillation of coal tar, gas, coke and tar, Low temp. Carbonisation, hydrogenation of coal.

Explosives:- Nitro-glycerine, nitro-cellulose, pyrotechnics, chemical warfare.

Dyestuffs: Vat dyes, sulphur dyes, dispersed dyes, intermediates and their manufacture, unit processes of halogenation, nitration reduction, sulphonation, alkali fusion, oxidation & carboxylation.

Plastics and Rubber- Phenol Formaldehyde Resins, Casein Formaldehyde Resins, Urea Formaldehyde Resins, Glyptal Resins, Polymer resins, Condensation resins.

Industrial Solvents, alcohol, acetone, acetic acid, synthetic methanol Sugar, Starch & Glucose.

Industrial Stoichiometry 52 hours.

Industrial Chemical Calculations.

Calculations bearing on (a) Composition changes and compounding of mixtures (b) Industrial Stoichiometry involving determination of excess reactants and the degree of completion of reaction (c) Use of Van der Wall's equation in gas calculations at high pressures. (d) Gaseous mixtures- average molecular weights, densities, volume changes with change in composition of gases in chemical reactions (e) Heating value of fuels. Elementary combustion calculations. Significance of flue gas analysis. Interrelations of fuel gas and fuel analysis. Heat losses in stack gases, (f) Heat and Weight balances of combustion processes, and chemical and metallurgical processes.

Advanced Physical Chemistry. 26 hours.

(1) Applied Thermodynamics: The concepts of enthalpy, entropy and free energy; vanto Hoff's isotherm and isochores criteria of chemical equilibria in homogeneous reactions in gaseous and liquid systems. Absolute entropy- Determination of affinities, and equilibrium constant at specified temperature from electro-chemical, equilibria and and thermal data.

(2) Kinetics of reactions: Temperature coefficient of reactions and energy of activation; chain reactions and explostions- A more detailed study of catalysis. Selective catalysis- catalytic poisons, and promotors.

(3) Applied Colloid Chemistry and surface chemistry: Applications of the principles of Osmosis, thixotropy, etc., and formation of gels,

emulsions in the technology of ceramics, paints, rubber, leather, textiles etc., Colloidal Electrolytes, Physical Chemistry of soap solutions and of high polymers.

Adsorption: Principles and applications.

Wetting and Detergency- application to froth floatation, textile processing etc.

Principles and Practice of Electro-Analysis: potentiometric titrations, conductometry and

(4) Heterogeneous systems: A more comprehensive study of the applications of the phase rule with special reference to ternary and higher systems;

Introductory Chemical Engineering: 104 HOURS.

Fluid machanics and transport of materials:- The course in hydraulics should give emphasis to the flow of fluids in the pipes and not to the flow of large quantities of water in rivers, etc.

Hydrostatic equation for compressible fluids. Bernoulli's theorem. The observation and plotting of streamlines. Nature of resistance of various shaped bodies in fluid streams. Principle of dynamic similarity. Reynold's number. Critical velocity. Turbulance. Elements of boundary layer theory. Formulae for flow in pipes and channels. Loss of head due to bends, etc. Hydraulic gradient.

Measurement of fluid flow by pitot and static pressure tubes nozzles, orifices, notches, venturi meters and hot wire anemometers.

Design and operating characteristics of reciprocating and centrifugal pumps and fans.

Mechanical and pneumatic conveying, elevators pumps, blowers. air-lift pumps. Design and operation of gas compressors.

Heat Transfer:- Mechanism of heat transfer by conduction, radiation and convection. Condensation of vapurs; effect of non-condensable gas. Radiation from surfaces and flames. Effect of nature of materials and boundary films of liquids and gases on heat transmission and their relation to fluid friction. Design of heat exchangers, recuperators, condensers, tube banks and coils. Heat conservation and insulation. Heat exchange through packed solids. Induction, eddy current, infra-red and dielectric heating.

The inter-relationships between heat transfer, fluid friction and mass transfer by diffusion.

Materials of construction:- The properties of materials of construction; metals, alloys and non-metals with special reference to corrosion, fabrication and properties at elevated temperatures. Iron and steel, alloy steels and irons (stainless steels, chemicals cast iron, ferrosilicon, etc) lead, copper, tin, zinc, nickel, silver aluminium, etc. effect of fabrication and operating conditions on the physical and chemical properties of metals and alloys.

Timber, rubber, plastics, jointing materials, chemical stone ware, enamels, cement and concrete.

Unit operations:- Size reduction-grinding, crushing and disintegrating types of mechines; relation between power requirements and size reduction. Emulsification.

Size separation and grading:- Particle size analysis. Screening, elutriation, flotation, settling and magnetic separation, centrifugal separation.

Filtration:- Batch and continuous filtration equipment. Theories of filtration and washing; industrial practice, filter aids. Use of centrifuges.

Drying:- theory of drying of solids; equipment for drying solids, liquids and gases.

Evaporation:- Principle of single and multiple effect systems Thermo-compression evaporators.

Distillation:- Theory of operation of plate and packed fractionating columns for binary and multi-component systems. Azeotropic distillation.

Mixing and agitation: Characteristics of equipment, power consumption, efficiency.

Adsorption absorption:- Theory and operation of packed plate and spray columns. Solvent vapour recovery; Leaching & Extraction.

Crystallization:- Theory & application on a large scale

Experiments illustrating the main principles dealt with in the lectures.

Heat Engines:- Hours - 52.

Heat; Elementary Thermodynamics; steam power plants and prime movers; properties of steam, steam cycle in reciprocating engines; power and performance of steam engines; types of steam engines; steam turbines; condensing plant; boilers; economisers, heaters, Diesel cycle, otto cycles; internal combustion engines, governing of prime movers.

Practicals:- Chemical Engineering & Heat Engines - 156 hours.

Technical Analysis:- 156 hours.

Bleaching powder, superphosphates, pyrites, steel. Pigments such as white lead, lithopone, prussian blue. Alcoholometry. Tannins. Sugar, Oils and soap, cellulose content of grass and bamboos, sampling of coal and coke. Proximate analysis. Determination of the coking quality of coal, gas analysis. Flash point and viscosity of oils, calorific values of all types of fuels.

Machine Design Drawing:- 78 hours.

Machine design:- Design of machine parts such as keys, cotters bolts, nuts, screws, helical and other springs, belts pulleys, gears, couplings, shafts, bearings, stuffing boxes; rivetted and welded pressure vessels; piping and trusses; concrete construction.

(* Selection of materials and fits and limits should be discussed).

Elements of Economics and Industrial Administration: 52 hours.

Introduction to fundamental economic concepts such as national income, production, unemployment, public finance and public debt, money, banking, international trade, prices, business, labour, and stock market. Stress on current problems facing every citizen.

Business administration and management:-

Business organisation and Finance:- Partnership and companies. Raising of capital in various forms. Laws of commerce in India.

Industrial administration and Law:- "Scientific management movement, industrial psychology, labour problems, partnership, wage systems, production control Time & notion study Safety methods and welfare work.

Factory legislation:- Contracts of service and apprenticeship, their formation and discharge and the duties of master and servant thereunder. Employer's liability under common law, factory acts on insurance, wages, hours of employment, labour disputes dangerous trades, etc.

Elements of cost accounting and factory control:- Costs of raw materials structures, equipment and erection, power, labour, maintenance and repair, capital, depreciation, interest, etc., preconstruction cost accounting,

Factory records and book-keeping, balance sheet, graphical and statistical control, purchasing and store organisation, marketing, patent laws.

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(24)

4th Year.

	Lectures.	Practical.
Chemical Engineering Thermodynamics	52	
Chemical Engineering I	78) Unit operations	
Chemical Engineering II	52) Laboratory = 312.	
Fuels and Furnaces including Refractories	52	
Chemical Engineering Plant Design	52	
Design Drawing	-	78
Economics and Costing	26	-
Visits		3
Works and Home Papers		
	312	393

Total: 705

125

(74)

Fourth year.

Chemical Engineering Thermodynamics 52 hours.

Quantitative Development of the fundamental laws, the thermodynamic functions. General Equations of Equilibrium. Pressure- Volume- Temperature Relations of Fluids. Thermodynamic Properties of Fluids. Compression and Expansion of Fluids. Refrigeration. Chemical Reaction Equilibrium.

Thermodynamics of Technical Reactions:- Applied Thermodynamics with reference to combustion processes and chemical processes e.g., synthesis of SO3, NH3, water gas, methyl alcohol from CO and H2.

Chemical Engineering I 78 hours.

Materials used in Chemical plant construction:- Corrosion. Iron, Steel, Alloy Steel. Chemical cast iron, Pb, Cu, Sn, Zn, Ni, Ag. etc. Timber and its utilisation. Cement, bricks and refractories, chemical stone-ware, synthetic materials like Haveg etc., rubber.

Physical Metallurgy: 26 hours

Relation between structure and mechanical properties. Metallic compunds; eutectices and eutectoids; metastable and labile states. Metallurgical technique. Chemical and spectroscopic analysis: "X"-ray examination: metallurgraphic examination: thermal analysis. Iron-carbon equilibrium diagram; heat-treatment: quenching: tempering: annealing: normalizing. Case-hardening: nitriding.

Alloy steels. Effects of alloying elements on structure, mechanical properties and heat-treatment.

Non-ferrous alloys. Structural and non-structural alloys. Micro-structure and properties: heat treatment: precipitation-hardening Precautions to be observed in fabrication: weld decay, work hardening, corrosion fatigue treatment. Effect of impurities. Texture and Chemical resistance.

Physical Metallurgy Laboratory:- Preparation and examination of micro- and micro-sections.(To be taken under chemical Engg. practicals).

Conveyance and storage of materials:- Bernouilli's theorem. Viscosity. Methods of measurement of gases, liquids, and laws governing their flow, resistance of pipe lines, pumps, acid egg., compressors, blowers, plant and equipment for conveyance and storage of solids, semi-fluids, liquids, and gases. Mechanical transport, conveyors,

elevators, penumatic transport. Jet apparatus for transport of gases, liquids and solids. Weighing of materials.

Heat Transmission :- Heat transfer by conduction, convection, radiation, & condensation of vapours, effect of non-condensable gas. Radiation from surfaces and flames. Relation between fluid friction and heat transmission through boundary films of liquids and gases.

Refrigeration, refrigerants. Heat exchangers, coolers, heaters, recuperators, regenerators.

Instrumentation and control:- Controllable properties. Temperature. Pressure. Humidity. PH. Gas. concentration. Speed of rotation, liquid level, specific gravity, etc.

Lags inherent in the process and in the controlling instruments, types of controller mechanisms.

Chemical Engineering II. 52 hours.

Size reduction.

Liquids:- Design of emulsifiers and sprays.

Solids:- Machines used for crushing, grinding, disintegrating, relation between power requirements and size reduction. Wet and dry grinding.

Mixing and Agitation:- Characteristics of machines required for mixing powders, liquids and pastes. Power consumption. Solution rates.

Separation:- Screens, elutriation by air and water.

Electrical Separation:- Electrostatic precipitators. Discharge of electricity through clean and dusty gases. Production of high voltage D.C.

Magnetic separation:- Theory. Machines used and materials which can be treated by this method-

Hydraulic separation:- Theory of separation by pulsating vertical currents of fluids and by flowing horizontal currents. Operation of machines for course, fine and slimy material.

Air separation:- Cyclone separators. Dust filters.

Flotation:- Principles. Reagents. Types of machines employed. Straight, bulk and diffierential flotation.

Settling:- Rate of sedimentation and sedimentation volume. Effect of flocculation and peptization.

Filtration:- Types of filtering plants and their economic selection to meet operating conditons. Theories relating to filtration and washing of cakes. Compressible cakes. Adjustment of reaction conditions to give optimum results. The use of filter aids.

Centrifugal:- Centrifugal force in relation to dewatering. Strength of basket. Critical speed. Supercentrifuges.

Air-Conditioning:- Methods of moistening and drying gases. Air conditioning plant, cooling towers. Theory of wet and dry bulb hygrometry.

Leaching and Extraction:- Multistage extraction in sedimentation tanks Percolation leaching. Diffusion battery for organic materials. Extraction with organic solvents.

Evaporation:- Single and multiple effect operation with parallel and reversed flow of steam and vapour. Vapour recompression.

Distillation:- Theory of fractional distillation for binary mixtures and for multi-component systems. Reflux ratio. Design of bubble cap, sieve plate and packed columns. Batch-continuous- flash- steam- vacuum-molecular and azeotropic distillation- Sublimation

Drying:- Industrial problems in drying and their influence on the choice of plant. The design of dryers

Crystallisation:- Crystal growth. Supersuaturation and nucbus formation. Operation and design of continuous crystallisers. Vaccum crystallisers.

Absorption:- The design and operation of packed towers. The theory of gas absorption and use of H.E.T.P. (height of equivalent theoretical plate) and H.T.U. (height of a transfer unit). The correlation of mass transfer and heat transfer in absorption towers.

* Adosorption:- - - -

Unit Operations. Laboratory 312 hours.

Quantitative study of suitable items of plant illustrating the unit operations dealt with in the lectures, including experiemental verifications of the principles. Measurement of the flow of fluids in pipes. Determination of the viscosity of liquids. Experiments illustrating turbulent and steam line flow. Determination of the

*Adsorption:- Recovery of solvent vapours. Properties of absorbent materials e.g. charcoal, Fuller's earth, theory of adsorption.

resistance of pipe lines. Effect of bends and joints. Characteristics of pumps for liquids and gases. Measurements of PH. Heat loss through lagged surfaces. Heat transfer to liquids and gases flowing in tubes. Heat transfer to boiling liquids. Grinding, mixing. Filtration and centrifugal separation. Fractional distillation, steam distillation and distillation under reduced pressure. Extraction. Drying. Process experiments illustrating typical methods used in the chemical industry.

Fuels and Furnaces including Refractories 52 hours.

Industrial fuels; origin, Composition; Classification; and storage of Coal; Chemistry of Combustion reactions; Combustion Calculations; Combustion of coal on Grates; Operation of hand-fired furnaces; Mechanical stokers and furnaces; Powdered Coal as fuel; liquid fuels and their combustion; Gaseous fuels-their production, properties, and combustion; synthetic fuels; furnace efficiency and distribution and heat losses.

High temperature Pyrometry.

Different types of furnaces; their design, construction, and operation; Design of Recuperators and Regenerators; Furnace supports; Materials of Construction; Refractories; Design of Chimneys.

Fuel Economy.

Refractories:- The Refractory Industry and its relation to other industries. A broad survey of refractory oxides, silicates, spinels, etc., their important physical and chemical properties.

Standard tests and the principles of sampling and testing. The raw materials, manufacture and properties of:-

(a) Silica refractories; (b) Alumine silicates. (c) Basic and composite refererntories and spinels. (d) Refractory insulating materials. (e) Plumbago, carbon (coke), silicon carbide and special refractory oxides.

Refractories handled in finely divided form by the user, including ramming mixes, patching materials, cements and mortars, refractory concrete, moulding sands, etc.

Refractory aspects of furnace construction and maintainance.

Refractory usage in various industries:- (a) Metallurgical industries

(b) Carbonising industries. (c) Steam raising and general heating.

(d) Ceramic industries (glass cement, enamel and the clay industries).

(e) Chemical industries.

Chemical Engineering Plant Design:- 52 hours.

Elements of Surveying and planning of Factory Layout. Supporting structures for Chemical Plant.

Theory of Structures, construction in steel and concrete and timber non-ferrous construction, Piping- Attachment and closures.

Elements of machine design as applied to chemical plants.

Design and construction of simple chemical units, such as tanks, bunkers and reaction vessels; Rivetted and welded pressure vessels and assemblies.

Principles of erection of heavy plant and equipment their drive, their layout and use of handling facilities like gantries, cranes etc.

Design Drawing 78 hours.

Preparations of detailed working drawings of unit chemical plants and assemblies from given specification and students' own design.

Economics, Costing & Estimating 26 hours.

Items involved in cost of production. Preparation of flowsheets- material, energy and time. Determination of cost of plant from plans and specifications. Lands, roads, fencing, offices, capital charges, depreciation, interest. Amortisation. Cost of raw materials and labour of various kinds. Supervision charges. Services, gas water, power, steam, stores, repairs, rates, taxes, insurance. Value of by products and disposal of trade wastes. General overhead charges. Transportation and packing charges. Selling charges. Margin of Profit on capital expended.

Works Visits and Home Papers 3 hours.

SCHEME OF EXAMINATIONS

130

(77)

Institutions should conduct examinations at the end of first and second year courses. In order that all institutions might follow a unified scheme of examinations the Committee recommends the following scheme :-

First Year Examination (Internal)

Theory

English and History of Civilizations

Physics

Mathematics

Elements of Engineering Economics

Inorganic Chemistry

Organic Chemistry

One paper in each of the above subjects of 3 hours' duration and carrying 70 marks. Each paper also carries 30 marks for class work, home work, sessional work etc.

Practicals

Physics Laboratory	- 3 hours	- 70 marks and 30 marks for class work.
Inorganic - Qualitative.	6 hours	- 70 marks and 30 marks for class work.

Total Number of marks for examinations	=	560
Marks for class work, etc.	=	240
Total	=	800

Second Year Examination (Internal)

Theory

Physical Chemistry

Inorganic and Organic Chemistry

Applied Mechanics and strength of materials

Electrical Engineering

Mathematics

Drawing

One paper in each of the above subjects of 3 hours' duration and carrying 70 marks; 30 marks for each subject for class work, home work etc.

Practicals

Inorganic Quantitative	- 12 hours -	140 marks and 60 marks for class work.
Organic	- 6 hours -	70 marks and 30 marks for class work.
Physical Chemistry	- 6 hours -	70 marks and 30 marks for class work.
Workshop	- 6 hours -	70 marks and 30 marks for class work.
Electrical Engineering Laboratory	- 3 hours -	70 marks and 30 marks for class work.

Marks for the examinations = 840

Marks for class work, home work etc. = 340

Total = 1200

Examinations at the end of the third and fourth year of the course will be conducted by the All-India Council for Technical Education. The third year examination shall be called All-India Diploma Examination Part I and the fourth year examination All-India Diploma Examination Part II. The schemes for the above shall be as follows :-

All-India Diploma Examination Part I

Theory

Chemical Technology	- 1 paper -	3 hours - 70 marks and 30 marks for class work etc.
Industrial Stoichiometry and Advanced Physical Chemistry		- 3 hours - 70 marks and 30 marks for class work etc.
Heat Engines		- 3 hours - 70 marks and 30 marks for class work etc.
Industrial Economics		- 3 hours - 70 marks and 30 marks for class work etc.
Introductory Chemical Engineering Paper I		- 3 hours - 70 marks and 30 marks for class work etc.
Introductory Chemical Engineering Paper II		- 3 hours - 70 marks and 30 marks for class work etc.
Drawing	1 paper	- 6 hours - 100 marks.

Practicals

Technical analysis including fuels		-12 hours - 140 marks and 60 marks for class work etc.
Chemical Engineering Lab.		- 6 hours - 70 marks and 30 marks for class work etc.

Marks for examinations = 630

Marks for class work, home work etc. = 270

Total = 1000

All-India Diploma Examination Part II

Theory

Chemical Engineering Thermodynamics	- one paper -	3 hours - 70 marks & 30 marks for class work.
Chemical Engineering Paper II		one paper - 3 hours - 70 marks & 30 marks for class work
Chemical Engineering Paper II and Casting.		one paper - 3 hours - 70 marks & 30 marks for class work.
Fuels and Furnances and Refractories	1 paper -	3 hours - 70 marks & 30 marks for class work.
Chemical Engineering Plant Design	one paper -	3 hours - 70 marks & 30 marks for class work.
Design Drawing	xxxxxxxxx -	4 hours - 70 marks and 30 marks for class work.

Practicals

Unit Operations		12 hours - 140 marks and 60 marks for class work.
Viva Voce		100 marks
Home paper of Thesis		100 marks

Marks for examinations = 760

Marks for Class work, home work, sessional work etc. = 240

Total = 1000

133 (79)

Annexure 13
Item No. 7(b) (ii) of Agenda

Eighth Meeting

Co-ordinating Committee of the
All India Council for Technical Education.

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(ii) The All India Board of Technical Studies in Architecture & Regional Planning at its last meeting held on the 18th August, 1949, finalised the syllabus for the post-Intermediate stage (4th and 5th years) of the Diploma Course and a scheme for the Final All India Diploma Examination.

Copy of the syllabus and the scheme of examination is appended hereto. The All India Diploma Course in Architecture is of five years' duration with Matriculation as minimum qualification for admission. Twelve months' practical training is compulsory, of which the first six months may be during the course and the remaining after passing the final examination.

P.T.O.

2. The Co-ordinating Committee at its meeting held on the 12th April, 1949 approved new syllabus for the first three years of the All India Diploma Course in Architecture (viz. upto Intermediate Stage). The revision of the old syllabus as approved by the Co-ordinating Committee has necessitated corresponding changes in the old Scheme of Examinations in force till now for the All India Intermexiate Examination in Architecture. The Board has now framed a new scheme for the Intermediate Examination, a copy of which is appended hereto. This scheme has to be put into force from the forth coming Examinations in 1950.

3. Approval of the Co-ordinating Committee is sought to the adoption of

(a) the syllabus for the post Intermediate stage of the All India Diploma Course (4th & 5th years)

(b) the Scheme for the Final Diploma Examination in Architecture.

(c) the Revised Scheme for the All India Intermediate Examination in Architecture.

FCS.

135
90

SCHEME OF EXAMINATIONS

Intermediate Examination :-

1. Admission to the written papers of the Intermediate Examination in Architecture will be regulated by the Board of Examiners on the basis of the candidates portfolios which should contain all marked studio work done during the first 3 years course. Preparation of Testimonies of Studies will be compulsory for students of part-time classes or for those appearing as private candidates.

2. The subjects of Testimonies of Studies shall be as follows :-

(a) Design of a building of moderate dimension to be presented in 3 sheets finished as working drawings with structural calculations.

(b) A brief specification of the building in (a) above.

(c) Two sheets of measured drawings of a building of architectural interest with half inch details.

(d) An essay of about 500 lines on the historical and structural importance of the buildings under (c).

3. The subjects of the examination papers will be as follows :-

(a) General Knowledge	2 hours' duration
(b) Design	18 hours plus oral.
(c) Building construction.	6 hours
(d) Structural mechanics	3 hours.
(e) History of Architecture.	3 hours.
(f) Specification and materials	3 hours.
(g) Surveying and leveling	6 hours.
(h) General vivavoce	- (If desired by examiners).

All-India Diploma Examination :-

1. Candidates must submit a thesis-design and/or written showing advanced and individual work on any one of the following subjects :-

(1)	Design including decoration-	Special aspect of architectural design.
(2)	Town Planning.	In relation to architecture.
(3)	Science as applied to buildings.	A special study of the application of science to definite problems of buildings such as accoustics, electrical or engineering requirements or a critical essay on recent developments in methods of building.
(4)	History of architecture	Direct study of actual historical buildings.

2. The subjects for the written papers shall be as follows:-

a)	Sociology and Economics-	3 hours.
b)	Design	6 hours at a stretch and 18 hours in instalments. Total 24 hours.
c)	Hygiene and Sanitation	3 hours.
d)	Advanced structural design and construction	2 papers each of 3 hours.
e)	Advanced specification and materials	3 hours.
f)	Professional Practice	2 hours.
g)	General Vivavoce covering all subjects.	

3. The All India Diploma in Architecture will be awarded only after the candidate has served twelve months in an Architect's office or on works. Six months of this period may be during the course, and the remaining six shall be after passing the Final Examinations.

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ALL INDIA BOARD OF TECHNICAL STUDIES IN ARCHITECTURE & REGIONAL PLANNING

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SULLABUS OF INSTRUCTION

Leading to the

All India Diploma in Architecture.

INDEX

Courses	Subject
I/A	Introductory Orientation Course
I/B	History of Culture - Part 1
I/C	Tuition in Language of Instruction
I/D	Free hand Drawing
I/E	Scale Drawing
I/F	Descriptive Geometry
I/G	Mathematics
I/H	Elementary Physical Sciences.
I/J	Elementary Construction & Materials
I/K	Design work
II/A	History of Culture - Part 2
II/B	History of Architecture - Part 1
II/C	Free-hand Drawing with Colour Theory
II/D	Building Construction & materials- Part 2
II/E	Principles of Mechanics
II/F	Surveying and Levalling
II/G	Design work
III/A	Sociology and Economics
III/B	History of Architecture - Part 2
III/C	Free-hand Drawing
III/D	Building Construction & materials - Part 3
III/E	Principles of Mechanics - Part 2
III/F	Specification & Estimating
III/G	Sanitation and Water Supply
III/H	Design work.
IV/A	Sociology & Building Economics
IV/B	Indian Arts and Crafts
IV/C	Landscape Architecture
IV/D	Urban and Rural Planning
IV/E	Acoustics
IV/F	Advanced Building Construction
IV/G	Advanced Structural Design
IV/H	Services
IV/I	Advanced Specification.
IV/J	Professional Practice.
IV/K	Design Work.

Appendix : Examinations.

FIRST YEAR

Course I/A

Total: 6 hours- (Lectures)

Introductory Orientation Course:

What architecture is, and what the architect does.

Outline of training given in the Department.

The status of the architect as a professional man and the relationship between him and his client.

Course I/B

History of Culture : Part I.

The development of culture in world history from the earliest recorded periods to A.D. 1400.

Total 36 hours (Lectures)

The course is to include discussion of both the nonvisual (e.g. music, religion, philosphy, literature) and visual aspects of cultural development. The emphasis throughout the course should be on Eastern culture, with its relationships with that of the West.

Course I/C

Tuition in Languages of Instruction.

Refresher course of grammer and syntax.

Class reading of a selected book, with exercises in precis writing.

Total 36 hours (Tutorial and Class-work)

Composition with emphasis on clear self-expression in simple language,

Practice in letter writing.

Course I/D

Free Hand Drawing:

Studies of simple natural forms and combinations of solid geometrical shapes.

Total: 150 hours- (studio and outdoor work)

Outdoor sketching & museum sketches.

Imaginative free-hand compositions.

(NOTE:Never, Under any circumstances, should students be permitted to copy from photographs or pictures).

Course I/E

Scale Drawing (Including lettering and rendering & Tracing).

Elementary scale drawing of simple shapes.

Describing plan, section, elevation, and practice in drawing.

Total 144 hours (lectures and studio work)

Measurement and drawing to scale of units such as furniture doors, rooms etc.

Lettering for titles, annotation of drawing etc. Caligraphy including appropriate vernacular scripts.

Architectural rendering, Hatching to represent materials.
Mixing and application of colour in flat and graded washes.

Representation of meterials by conventional colouring.

Rendering of sheets composed of two-dimensional pattern forms.

Course I/F — Descriptive Geometry (Including Study of Shadows and perspective.)

Study of solid geometrical forms in various positions including groups of forms.

Interpenetration of solids and representation, in two dimensions of grouped and interpenetrated solids.

Analysis of complex forms(mouldings, vaults etc) at different intersections.

Axonometric and Isometric projections extension of study of interpenetrated solids to include representation of such groups in these projections, including reduction to scale of large forms.

Geometrical perspective. Parallel perspectives ... of interiors and exteriors.

Total: 216 hours (lectures and studio work)

Angular perspective of solid geometrical shapes, leading to perspective of building forms. Measurement of furniture etc. and representation of this in perspective, to scale, and in varying positions.

Study of shadows, Shadows cast by simple forms on plain surfaces. Shadow of more complicated forms falling on irregular surfaces.

Study of shade and shadow in a group of forms.

Study of shade and shadow on some building or part building including measurement of the building concerned and its representation to some convenient scale.

Course I/G — Mathematics:

Trigonometry Simple equations, function of compound angles. Solution of triangles etc.

Total: 36 hours- (lectures and class work)

Co-ordinate Geometry: Principles and uses of Graphs and equations. Conic sections.

Calculus (Optional for the schools) Principles of differential calculus, Integration.

Application to graphs.
Maxima & Minima.
Areas of figures.

Course I/H — Elementary Physical Sciences:

Physics: Measurement of Areas, volumes and other physical quantities, C.G.S.,& F.P.S. Systems.
Mass, weight, specific gravity.
Elementary properties of solids-hardness, brittle ness, malleability, etc.
Elementary properties of liquids-Hydrostatic pressure and its applications.

Total 72 hours.

Elementary properties of gases - Barometers, common pumps and siphons.
Heat: temperature, expansion, specific and latent heat.

Transference of heat.

Sound: Production and propagation of sound, echo, multiple echo.

Chemistry: Solution, decantation, fibration and crystellization. Symbols and formulae.
Study of atmosphere. Oxygen, nitrogen, hydrogen and carbon dioxide, Reduction and oxidisation:
Acids and alkalies - hard and soft waters.
Chemistry of common building materials:
Stone, brick, cement, metals - (i.e. Iron, steel, Lead, copper, zinc, etc.), woods

(Instructions to have emphasis on Architecture)

Course I/J — Elementary Construction and Materials:

The primary elements of any building, their function, and necessary characteristics of their structure.

The basic building materials (Timber, stone, brick) and their application in fulfilling the demands of the structure of basic building elements.

Total: 210 hours (lectures, Practical & Studio work)

More detailed study of the use of the basic materials. Bricklaying and bonding simple timber joints; stone masonry. The tools used in carrying out simple building work

Practical building work on a simple unit involving the use of basic materials and simple structural forms. Simple foundations, walls, formation of openings, simple beam or lean to roofs.

Course I/K — Design work:

Proportions of simple, 2- dimensional shapes (rectangles etc.)

Composition of proportionally related shapes and relation of the composition to its field.

Exercises in the use of repetitive pattern. Effect of colour changes on repetitive pattern. Design of patterns for specific purposes - (e.g. Curtain textiles, flooring, etc.)

Simple design subjects in relation to construction & materials.

Total: 210 hours- (lectures and studio work)

Relationship of repetitive pattern to larger compositions of 2-dimensional forms.

Use of isolated points of interest to emphasise focii.

Exercises in the disruptive effect of pattern on plane surfaces.

Total hours. 1116

Add 34 hours for extra periods, visits to buildings, and class debates.

Net Total Hours. 1150

Vocation Work: Reading of any book of literary merit in the language of instruction. To be chosen by the individual student, and approved by the School authorities before the start of the vacation.

Course II/A — History of Culture - Part 2.

Total 36 hourse (lectures)

The historical development of world culture from A.D.1400 until the present day. As in part 1 of this course, lectures are to cover non-visual and visual cultural development, with emphasis on Eastern cultures related to those of the West.

Course II/B — History of Architecture - Part 1.

The development of Indian Architecture from the earliest times up to 1405 (Death of Timurlane) Parallel Architectural development in the rest of the world with particular emphasis on those periods and phases which had a direct influence on development in India.

Total: 36 hours- (lectures)

Teaching of architectural history to be taught as the history of the solutions (and developments therefrom) of structural problems, related to the materials and building technique available.

Course II/C — Free-hand Drawing (Part 2) with Colour theory.

Studies of more complex geometrical forms, with compositions of natural forms-flowers, fruits, foliage etc.

Outdoor sketching with particular reference to compositions of simple building forms in relation to their settings.

Total: 144 hours (lectures and studio work)

Simple three-dimensional compositions, Reduction from the mass to the form (carving) and building up of forms (modelling)

Lectures, followed by exercises, on the colour circle (e.g.Ostwald system) to demonstrate contrast and harmony.
Extension of the above into study of the relation of tone and colour, and the reduction of contrast to neutral tints by means of black and white.

Introduction to the psychological use of colour.

Course II/D — Building construction and Materials - Part 2.

More detailed study of brick, stone and timber, including laboratory strength tests (where possible)

Other elementary materials such as glass, paints and varnishes roof finishes etc.

Total 216 hours.

More complex exercises in structural uses of timber, including, simple pitched roof forms, doors and windows wooden floors etc. wooden fibers with. together with rule of thumb calculations and study of various joints used.

Practical work on a simple building unit involving elementary building carpentry (roofs, windows, etc.)

Course II/E — Principles of mechanics as applied to buildings.

Nature of statics,
Equation of equilibrium.

Total 72 hours= (lectures & demonstrations.

External and internal forces. Bending Moments and shearing Forces.

Demonstration of the nature of forces by application of loads to articulated models.

Preparation of simple stress diagrams.

Course II/F — Surveying and Levelling:

NOTE: In this course, special reference must be made to the surveying of buildings and building sites and the necessary standards of accuracy.

Total 108 hours- (lectures and field work).

Surveying: Definition. Use of chain and tape, five-foot rod and foot-rule in making survey of buildings and building sites. Prismatic and dip compasses. Trapezoidal and Simpson's rules for computing areas. Optical squares.

Theodolite survey.

Plane table Survey.

Levelling: Definition, Reduced level; mean sea level. Recording observations in field book. Use, and adjustment of Dumpy level and Y level

Course II/G — Design work.

(a) Lectures:
Study of the relationship between plan, section and elevation.
Composition, of blocks and other 3-dimensional forms.

First steps in the analysis of design problems: study of room uses, circulation, inter-relation of parts, sizes of components and fittings etc.

Total 504 hours.

Architectural Scale; the relation between vertical dimensions and the human scale, and between the vertical and horizontal dimensions. True scale and forced scale.

Inter-relation between exterior expression and internal plan and section.

Building and their setting, study of site and climatic planning.

Theory of colour contrast and harmony as applied to interior decoration.

Notes on interior design with attention to room character; use of colour, texture, lighting in domestic interiors.

(b) Studio Work:

Note: All the main subjects should be carried to the working drawing stage.

Design of single storey buildings containing one or two large cells with ancillary units (e.g. sports pavilion).

Design of small domestic buildings with particular attention to room uses and circulation.

In at least one of these subjects, an exercise in interior design may be included.

Six hour Design sketches to stimulate the imagination (e.g. Ceremonial gateways, stage settings etc.)

(c) Model making:

At least one of the design subjects in this year should be studied as a model. Lecture/Demonstrtions on architectural model-making are to be given.

Total hours; 1116

Add 34 hours for extra periods, visits to buildings, class debates and special demonstrations.

Net total hours: 1150

Vacation work: Measured drawing of a small building of architectural interest with a report on its structural and aesthetic significance.

THIRD YEAR.

Course III/A — Sociology and Economics.

Sociology: Political and Social Structure of India. Central and Local Government; Regional Social Services; Public Assistance: Education. Voluntary Social Services, Public Health and unofficial welfare organisations.

Elements of Economics. Labour, Capital, and National income, the production process and the fectors of production, Population Specialisation of Labour. Capital goods and the national income.

Total 36 hours- (Lectures)

Theory of value, Labour theory, Rent and Comparative costs Marginal Utility. Money. The nature of money. The demand for money and the prices level. Supply of money, Banks and Central Banks, Foreign exchanges, with and without the gold standard.

Course III/B — History of Architecture : Part 2.

The development of Indian architecture from 1405 to the present day.

Parallel architectural development in the rest of the world with particular emphasis on those periods and phases which had a direct influence on developments in India.

Total 72 hours (Lectures)

Growth of the Nationalist movement in modern Europe including latest developments in the solution of heat and glare insulation problems (Brazil, the Pacific; and U.S.A.

Course III/C — Free-hand drawing - Part 3 (Including life drawing).

Study of complex building and vegetation masses, (outdoor sketching)

Total 72 hours- (Lectures and Studio work)

Study of drapery; of light and shade (tones) in interiors.

Drawing from clothed, draped and undraped figures, including brief minute-sketches of moving bodies, studies of animals, Imaginative compositions including figures, buildings, and vegetation.

Course III/D — Building Construction and Materials-Part 3.

Special uses of simple materials-timber, piling and staring, underpinning, centering etc.
Decorative brickwork.
Finishes of exposed concrete surfaces.
Total — Brick and stone vaulting.

See note* — Special properties of concrete (mass and reinforced)
Calculation of simple r.c. structural members (beams, slabs, columns, chajas).

External rendering & coverings for concrete terrcotta,

Building components - steel casements, door frames, Office partitions.

Lantern lights etc.

Hearths and Chuleas.

NOTE: In all cases where calculations are taught the practical use of them should be simultaneously stressed. (e.g. Truss calculation should be followed by exrlanation of truss fabrication, together with purlin fixings, coverings, etc.)

Course III/E — Irincirles of mechanics as arrlied to buildings. Part 2.

NOTE: This course of lectures is closely co-ordinated with course III/D above.

Total — Wind forces.
Stress diagrams of trusses.
See note* — Moments of inertia and section modulus.
Compound bending of redius of gyration.
Shear stresses grarhs.
Normal and shear stress on oblique faces of materials.
Calculations of maximums tension. Compression and Shear.
Deflection: Special properties of steel. Calculation of simple steel structural members (U.S.J. Beams and columns. Simple trusses.)

Special rroperties of concrete (mass and reinforced)
Calculation of simrle r.c. structural members (beams). Stress in continuous beams & Symmetrical rigid frames by the method of moment distribution.

Course III/F: Specification:
Specification of materials, finishes etc. on working drawings.
Total — Definition and use of specifications, Method writing (correct order and sequence of Leadings).

See note* — Clause by clause analysis of a standard specification.

Inspection of work in progress. Joints to be noted and methods of checking that specifications are being followed-

Factors effecting cost. (Mention may be made of the function of quantities, but detailed explanation of the process of taking off quantities follows in the 4th/5th Year Course).

Approximate estimating and cubing of work. Other method of approximate computation of costs (squaring etc.)

*Note: Course III D.E. and F are so closely inter-related that single time figure at 288 total hours is given for them.

Course III/G — Sanitation and Water surrly:

Basic principles of sanitation and the disposal of waste matter from buildings.

Standard types of sanitary fittings; traps; taps; rire jointings; mechanism of flush tanks.

Total 48 hours (lectures) — Manholes; fall and laying of drains.

Layout of simrle drawings systems for small buildings.

Testing of drainage layouts.

Sources of Water-surrly, Testing of water for hardness.

Calculation of water consumption.

Domestic water-riring-sizes, jointing, etc.

Course III/H — Design Work:

Note; Design work in studio should be carried out through the media of all the following:

Time sketches (6 and 12 hours),
Project drawings,
Working drawings,
Perspectives,
Models,
Studies of interiors,

a) Lectures:
Study of building exemrles of various tyres, through plan, section, structure, and external expression.

Total: 567 hours

b) Studio work:
Design of multi-floor building with repeating & non-rerreating units on urrer floors. (May be a small frame structure).

Design of a building involving rroblems of circulation and Inter-relation of different rarts (e.g. small college, hosrital).

Design of a larger domestic building to be completed as working drawings with specification, drainage layout and cube estimate of cost.

c) Sketches:
Studies of building masses, furniture design, circulation (traffic or reorle)

Construction studies in relation with Courses III/D

Add 68 hours for extra rerionds, visits to buildings, class debates and srecial demonstrations.

Total Hours: 1092

Net total hours:
1150

Vacation work: Measured drawings of buildings of Architectural interest with emphasis on structural analysis including submission of reports.

FOURTH AND FIFTH YEARS.

Course IV/A: Sociology (Part 2) and Building Economics.

Total : 72 hours - (lectures).

The Social framework. Population. National Capital. Social Capital and Social Income. Inequality of incomes. Poverty, unemployment, social security and its implications Economics and the social conscience. The broader aspects of a planned economy.

Applied Economics.
Land and its problems. Labour and its efficiency. Types and of business enterprise. External and internal economics. Horizental and vertical integration. The economics of building contracting. Capital and return on landlord projects-offices, cinemas, residential property. The relation between initial and recurring expenditure in building costs.

Course IV/B. Indian Arts and Crafts.

NOTE : This course of lectures is mainly intended to stimulate interest in the students and to encourage them to investigate through private research the various branches which interest them.

Painting : Historical and technical survey, of picture-painting and mural-painting both interior and exterior.

Sculpture : Stucco, bronze and stone sculpture-architectural and decorative. Wood-carving, both [illegible] and exterior.

Total : 36 hours. (Lectures) Textiles : Woven, dyed printed and embroidered textile Carpets.

Metal work : Beaten and cast metal-work. Copper, silver and brass. Traditional jewellery in silver and gold.

Enamel work.
Inlay-work : Pictura-dune, and inlay of metals.

Music and Dancing : Classical styles and fold styles.

Folk-art : Ritual paintings and decorative design. Painted toys. Vase decoration.

Course IV / C. Landscape Architecture :

Relation of buildings to their setting. Formality and informality. Particular problems in planting arising from Indian climatic conditions.

Total : 36 hours Lectures)

Use of water in architectural settings. Sculpture and landscape.

Study of three-structure : suitable trees for

architectural use. Colours and forms of foliage.

Garden Planting : relation between flower colours and building colours.

Study of examples of building settings, rural and urban.

Note : Parts of this course should be closely correlated with Course IV/D (Urban and Rural Planning).

Course IV/D. Introduction to Urban and Rural Planning :

Note : This course is not intended to do more than private general information on the scope of work involved in Urban and Rural Planning Schemes.

Total : 72 hours ; (Lectures)

History of Town Planning, with special emphasis on developments in India.

Civic and Regional Survey.

Principles of Urban and Rural Planning.

Site layout : Traffic Planning.

Village Planning, with its particular implications in India.

Town Planning, Legislation, and relevant building legislation and regulations.

Course IV/E. Architectural Acoustics.

General Principles of transmission and passage of sound Reverberation, absorption, reflection, etc.

Total : 36 hours (Lectures).

Principles underlying good acoustic design in buildings
Absorbants and reflectors.
Types of absorbants and reflectors. Tables of materials with their various co-efficients of efficiency.

Study of acoustic design for various room-types-speech and music auditorial Law course Committee Rooms; Dining Halls: etc.

Special problems in connection with the insulation of structure-born noise. Insulation of air-conditioning ducts, and machinery beds.

Note : Practical work to be correlated with Studio design work.

Course IV/F. Advanced Building Construction and Materials :

Indigenous Indian building materials and crafts: Adobe; stablished earth; rise de terre; bamboo concrete; thatch; mass concrete vaults (Rajputiana type); glazed tiling; stone frame structures (Fatehpur Sikri type); cut and polished Plasterwork etc.

Total :
216 hours -
(Excluding time spent on working drawings of design projects).

Synthetic building materials;
Plastics; fibre-boards; asbestos cement; insulators. vermiculite, glass silk, cork, eel-grass, foam-concrete; light-weight high-duty alloys; special glass-non-actinic shock-resistant, heat - proof, vencers and laminated boards; non-ferrous metals-copper, zinc, bronzen, gumbase paints.

Building components, fittings and finishings;
Built in furniture;
Panelling;
Shop-fittings and counters;
Light-fittings (including introduction to artificial light design)
More complex staircases (e.g. spirals)
Use of marbles.
Terrazzo, composition, and patent flooring.
Sliding doors and windows.
False and suspended ceilings.

Panel and non-structural external walls in buildings.

Courses IV/G: Advanced Structural Design :

Gantilevers.

Building Girders, columns and large trusses.

Total :
144 hours ;
(Lectures and Studio work: excluding time spent on working drawings of design projects)

Welded steelwork.

Special loads - rolling roads, lift loads, loads of virating machinery.

Special foundations - raft, cantilever, compound. Piling.

Earthquake stresses: temperature expansion and construction in large building.

Special structural methods.
Stresses skin: "Diagsid": Shell concrete; prestressed concrete; pre-cast and vibrated concrete; pre-fabrication in metal, timber, concrete.

Reinformed concrete as a plastic material: spirals; box-frames; etc.

Note : Theoretical instruction should be conducted concurrently with instruction on practical processes. (e.g. Welding calculations together with welding practice).

Course IV/H. Services:

More advanced water supply: filtration and softening plants. Domestic hot water systems, including the use of solar heating.

Total :
144 hours
(Lectures)

Sanitation and refuse disposal Sewage disposal plants, spetic tanks, refuse chutes Garehy System of disposal.

Electrical, mechanical and gas installation: Domestic electric appliances (Washers etc.): Lifts: Escalators: exhaust fans; small gass plants and gas appliances; gas and electric space heaters. Laboratory services including fume cupboards, compressed air, vacuum, HT electrical, etc.

Air conditioning and ventilation: Extract and plessum ventilation systems Evaporative cooling. Unit air-conditioning. Large plants, including new systems such as Velkert piped system, and hot and cold well systems.

Course IV/I. Advanced specifications and Quantity Surveying :

Total :
72 hours -
(Lectures)

Specifications for special finishings, and advanced materials; for larger-scalework industrial and commercial-frame structures with mechanical services.

Function of quantities; methods of taking of quantities. Measuring up of work for interim and final certificates of payment to contractor.

Note : Courses IV/H and IV/I to be correlated with Studio Design.

Course IV/J. Professional Practice :

Duties of the Architect as distinct from Contractor or Quantity Surveyor (verseer, SDO, etc. Their relationship with, and liability towards the client.

Types of contract; Forms of contract. Handling of tenders.

Valuations of Buildings.

The Architect's relation to the Contractor and Sub-contractor. Payments to contractors, including final certification.

Total :

Professional conduct and etiquette including scale of charges.

72 hours.
(lectures)

Administration of an architect's office; registering and filing of drawings and letters.

Elementary accountancy.

Building Law & Local building Bye-laws, with points of general interest in Bye-laws of other cities.

Course IV/H : Design subjects :

Note : Few lectures on Design theory should be necessary during this part of the course. Instead discussion periods should be conducted, and reserch work done in the library on matters relevant to the studio design exercises.

Total :
1400 hours.
(Studio work and Lectures)

Studio work should include the following :

Time sketches.
"Project" drawings.
Structural design, including calculations,
Working drawings,
Perspectives and models.
Interior design schemes.
Service Plants.

Design subjects :

a) Light industrial building, involving, the layout of manufacturing processes, ventilation, organisation, of labour and administration.

b) Larger multi-storey frame building: to include acqustics, air-conditioning, traffic circulation, and interior design.

c) Scheme involving Planning of units in relation to each other - (e.g. co-operative farm village).

d) Lay-outs of areas (e.g. exhibitions) including Planting etc.

e) Sketch designs for "specialist" buildings - (e.g. Air Galleries or Railway stations).

Note 1 : Subjects coming under the headings (d) and (e) above, might if time is short be treated as subsidiary subjects, and not carried into the working drawing stage.

Note 2 : In addition to the normal design subjects, the Thesis is to be prepared during this part of the course. Time for this is included in that allotted to design work.

Total hours; 2280

Add 20 hours for extra periods, visits to buildings class debates, and special demonstrations.

Net total hours 2300

Co-ordinating Committee of the All India Council for Technical Education.

....

A. Appointment of Examiners.

The Co-ordinating Committee at its meeting held on the 4th October, 1948 adopted the report of its Sub-Committee, which was appointed to scrutinize the recommendations of the All India Boards of Technical Studies regarding Regulations for the conduct of Examinations. It was decided by the Committee, that "as far as possible only external examiners should be appointed for the written papers, that the examiners should be preferably drawn from amongst teachers, working at institutions, not affiliated to the Council for All India Courses."

2- The All India Boards of Technical Studies in Architecture and Regional Planning at its meeting held on the 18th August, 1949, however, decided that since architectural examinations have their own peculiar features, especially in regard to availability of qualified examiners for conducting the examinations, the above directive precluding the appointment of Examiners from amongst those working at institutions affiliated to the Council should be modified so as to permit the appointment of such persons to act as examiners for the All India Examinations. It was also decided that there should be two examiners (instead of one as provided in Rule 26(b) of the Examination Rules) for each subject of the Intermediate Examination' one of whom should preferably be a person working in an educational institution.

3. At the instance of the All India Board of Technical Studies in Architecture & Regional Planning Prof. C.M. Master has prepared a short note on the need for the above change in the rules for the consideration by the Co-ordinating Committee. The note is reproduced below :-

" The directive of the Co-ordinating Committee that as far as possible only such persons as are not working in institutions affiliated to the Council for the All India Courses

P.T.O.

should be appointed as examiners has been followed uptil now. It is, however, bening gradually realised as far as examinations in Architecture are concerned the candidates should be judged not only on their work in the examination but also on what they have done during the years at their school. For the latter the teachers at the school are the best judges as they have watched the progress of the candidates throughout their career.

The matter was considered by the Board of Technical Studies in Architecture & Regional Planning at the meeting held on the 18th August, 1949 and it was unanimously resolved that there should be two examiners for each subject one of whom will be an internal examiner. There will not be any increase in the remuneration to be paid. (See our proposal vide Item No : 7(b) (v) of the agenda).

Internal examiners have always been appointed for the conduct of the Government of Bombay Examinations in Architecture.

Permission of the Co-ordinating Committee is sought to incorporate the appointment of internal examiners for Examinations in Architecture as from Examinations to be held in 1950.

"B" Examination Rules

Examination Rule No. 9 relating to the All India Examinations in Architecture, lays down that " a candidate shall be declared to have passed the examination if he obtains

a) Not less than 50% of the marks in each of the papers of the written examination.

b) Not less than 50% in the testimonies for each subject.

c) 50% in the aggregate

and Rule No. 10 lays down that - "The subjects for the examination shall be grouped as follows :-

Design Group

Construction Group

Historical Group

Successful candidates obtaining not less than 80% in any Group shall be awarded distinction in that Group".

2. The All India Boards of Technical Studies in Architecture & Regional Planning at its last meeting held on the 18th August, 1949 decided that the testimonies or school work should be marked as a whole and not subject by subject and the deficiencies in any particular subject should either be condoned or the examinee should not be allowed to appear for the written papers. The rule in force, on the other hand stipulates that in order to pass a candidate should obtain not less than 50% of the marks allotted for testimonies in each subject. In order, therefore, to remove the anamoly the Board recommended that the existing rules should be modified to suit the present scheme of examinations viz."The minimum for a pass in testimonies and school work should be taken as 50% of the aggregate i.e. all subjects put together. Distinction in any subject should be awarded only on the basis of the performance of the candidates in the corresponding written papers.

3. The above revision in the rules as recommended by the Board is hereby placed before the Co-ordinating Committee for approval.

FCS.

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Eighth Meeting (91)

Annexure 15
Item No. 7(b) (iv) of Agenda

Co-ordinating Committee of the
All India Council for Technical Education

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Scheme of Examinations. Rule '26' of the Examination Rules relating to All-India Diploma Examinations lays down -

The number of paper-setters and Examiners in each written paper shall be two.

Rule No. "34" says -

'where two examiners are appointed for a written paper, the marking will be done by each examiner, inderendently. The final marking will be decided by the Examination Committee."

The following All India Diploma Examinations were held in 1949 in accordance with the above rules :-

i) Electrical Engineering

ii) Commerce

iii) Chemical Engineering & Technology.

2. Numerous difficulties were experienced in conducting the examinations and declaring the results in accordance with the above rules.

The Examination Committees concerned with the above examinations have made the following observations and recommendations.

"In the present All India Diploma Examination Scheme, there are two examiners for each paper, who are required to jointly set the paper but value the answer books independently. While this sytem has no doubt merit in theory it does not satisfactorily work in practice as experience has shown this year. Firstly for setting the paper the Examiners should meet together and discuss the whole syllabus and the standard of the Examinations, as otherwise the questions that each examiner sets are likely to be wide off the standard

and the two sets of questions obtained from both the examiners might frequently be so unbalanced that the Board of moderators would have considerable difficulty in meeting the situation. As the examiners selected do not always live in the same place and hence cannot easily meet to set the paper, recourse to postal correspondence does not help them; and when they do there will be considerable delay in setting the issues. Consequently, each examiner sends his won set of questions to the Controller and when this happens, neither are the provisions of the scheme viz. that the paper should be set by the two examiners, jointly satisfied nor will the work of the Board of moderators be easy, if the two sets are unbalanced. Next the scheme stirulates that the answer books should be valued by the two examiners, inderendently. This has created many complications, as seen this year. The examiners have widely differed in their assessment of the performance of the candidates; and the difference is in many cases as much as 20 marks in a paper carrying a maximum of 70 marks. Cases have been noticed where one examiner has given more than pass marks, while the other has given much less. Merely taking an average of the awards of the two examiners, where they have differed by more than 5% is neither fair to the students nor to the objectives in appointing two independent examiners. Consequently, in certain cases answer books have had to be reexamined by a third examiner, and in others the awards made by one of the examiners have had to be taken as final. If the system of having two examiners is to continue, satisfactorily, the two examiners should first meet to decide about the method of assessment, the standard expected at the examinations and other details and then to proceed to value the answerpepers. Such a meeting is, however, neither practicable nor admissible according to the rules.

In consideration of the above, the Examination Committees of the Engineering and Chemical Engineering Boards have recommended that the present scheme of examinations be changed as follows :-

"The syllabus of each subject or paper should be divided into 2 sections and each section should have only one examiner, who sets questions in that section and examines the answers. The aggregate of the marks obtained by a candidate in the two sections should be considered as his performance in that subject or paper". The Examination Committee of the Commerce Board has, in addition to the above, made an alternative suggestion that there should be only one examiner for each paper, who sets the paper and also values the corresponding answers.

3. The All India Boards of Technical Studies in (i) Engineering & Metallurgy and (ii) Chemical Engineering & Chemical Technology, have endorsed the above views and recommendations of their respective Examination Committees and have recommended to the All India Council that hereafter the All India Diploma Examinations should be conducted in accordance with the above recommendations, and Rule No. 34 of the Examination Rules be correspondingly amended.

The All India Board of Technical Studies in Commerce and Business Administration has, however, recommended the second alternative viz. of having only one examiner for each paper irrespective of sections.

4. In view of the decision to hold Supplementary Diploma Examinations in Electrical Engineering in January 1950, the matter was referred to the Chairman of the Council pending final decision by the Co-ordinating Committee. The Chairman accorded his provisional approval to the first alternative i.e. "the syllabus of each subject or paper should be divided into two sections and each section should have only one examiner, who sets the questions in that section and examines the answers; the aggregate marks obtained by a candidate in two sections should be considered as his performance in that subject or paper".

5. The issues for the consideration of the Co-ordinating Committee are as follows :-

a) The abolition of the present scheme of having two independent examiners for each paper, who jointly set questions, but separately value the answer books.

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b) In consequence of (a) above

i) Division of syllabus of each subject of each paper into two sections, as recommended by the Engineering & Chemical Technology Boards and appointment of one examiner for each section

or

ii) Appointment of only one examiner for each paper, as recommended by the Commerce Board, irrespective of Sections.

FCS.

Annexure 16
Item No. 7(b)(v) of Agenda.

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Eighth Meeting.

Co-ordinating Committee of the
All India Council for Technical Education

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Revision in the Scale of remuneration for Examinations.

Rule No. 32 of Examination Rules lays down that paper setters, examiners and moderators shall be paid remuneration at the scale mentioned below :-

Setting of a Paper.

a)	Diploma in Architecture	Rs. 100/- (To be shared between two examiners)
b)	Other Diploma Examinations	Rs. 75/- (do)
c)	Certificate Examinations	Rs. 40/-

Examining an answerscript.

a)	Diploma in Architecture	Rs. 2/- for each examiner
b)	Other examinations	Rs. 1/8/- -do-

2.(A) If the recommendations of the All India Boards of Technical Studies in (i) Engineering & Metallurgy, and (ii) Chemical Engineering Engineering & Chemical Technology (Item No. 7(b) (iv) of the agenda) regarding discontinuance of the present system of having two independent examiners and introducing instead another system of dividing the syllabus of each paper into two sections, each section having one examiner are approved by the Co-ordinating Committee, each examiner will only examine one half of the paper (viz. the section set by him) instead of examining the entire answer-script as done hereto. As a result of this change corresponding changes are required to be made in the above scale of remuneration. In view of the present financial stringency it is suggested that for the valuation of answer-scripts for the All India Diploma Examinations in all subjects (except Architecture) may be revised as under :-

Setting of a paper - Rs. 75 to be shared between two examiners, if the paper has two sections.

Examining an answerscript. Rs. 2/- per answerscript (To be shared by two examiners if the paper has two sections)

or

Re. 1/- per examiner per answer-script.

If, however, the recommendations of the Commerce Board (Vide Item No. 7(b) (4) of the agenda) regarding having only one examiner for the entire paper irrespective of sections is accepted, then the following changes may be made in the above scale of remuneration :-

Setting of a paper.

Diploma Examination. Rs. 50/-

Examining answer-script.

Diploma Examination Rs. 1/8/- per script

(B) If the recommendations of the Architecture Board (vide Item No. 7(b) (iii) (a) of the agenda) in respect of having two Paper-Setters & Examiners for the All India Intermediate Examination is approved by the Co-ordinating Committee, the following revised scale of remuneration is suggested taking into consideration the special feature of architectural examinations.

For setting of a paper	Rs. 60/- (To be shared between two examiners)
For marking answerscript	Rs. 1/8/- per examiner per script.

(C) In the scheme for All India Dirloma Examination in Electrical Engineering as laid down in accordance with the new syllabus (vide item No. 15(a) (i) of the agenda) "Examination of Laboratory Journal" has been provided instead of practical examinations in the following subjects :-

i) Strength of Materials

ii) Hydraulics & Hydraulic Machinery

Examination of laboratory journals prepared by candidates during the course has not been catered for separately in Rule No. 32 of the Examination Rules and it is recommended that the Scale of remuneration for this part of the examinations

be Re. 1/- per candidate for each examiner.

3. A summary of the above proposals is given below for the approval of the Co-ordinating Committee :-

For Setting a Paper.

(a) Diploma in Architecture — No change

*(b) Other Diploma Examinations. Rs. 75 to be shared between two examiners (If the recommendations of the Engineering and Chemical Engineering Boards are accepted vide item No. 7(b) (iv) of the agenda)

or

(b) Other Diploma Examinations. Rs. 50/- (if the recommendations of the Commerce Board are accepted vide item No. 7(b) (iv) of the Agenda)

(c) Certificate Examinations — No change

(d) Intermediate Examination in Architecture — Rs. 60/- (To be shared between two examiners)

Examining an answer-script.

a) Diploma Examination in Architecture — No change

b) Diploma examinations other — Rs. 2/- per script (To be shared between two examiners)

(Note:- If the recommendations of the Engineering and Chemical Engineering Board are accepted vide item No..7(b) (iv) of the agenda) — Re.1/- per examiner per script.

or

b) Other Diploma Examinations — Rs. 1/8/- per script

(Note :- If recommendations of the Commerce Board are accepted vide item No. 7(b) (iv) of the Agenda)

c) Certificate Examinations - — No change

d) Intermediate Examination — Rs. 1/8/- for each examiner.

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Annexure 17 — EIGHTH MEETING
Item No.7(b)(vi) of Agenda

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

A representation was received from the Technical Employees of Central Public Works Department that Diploma-holders in service under Government should be allowed to sit for the degree examination, irrespective of age and without their having to undergo prescribed courses of studies at an institution. The representation was considered by the All India Council for Technical Education at its Third meeting held at Bombay on the 22nd April, 1948, and the Council passed the following two resolutions:-

a) The Council is of the view that the Engineering Diploma holders in the service of Central Public Works Department should either take part-time courses and appear for the All India Diploma Examination or qualify for the Associate Membership of the Institution of Engineers.

b) In the case of Architectural Assistants, the Council desires that the matter may be considered in the first instance by the Board of Technical Studies in Architecture who may suggest necessary conditions which such assistants should fulfil in order to be eligible to sit for the different parts of the All India Diploma Examination.

2. The resolution of the All India Council for Technical Education in respect of Architectural Assistants serving in the Central Public Works Department was considered by the All India Board of Technical Studies in Architecture and Regional Planning at its meeting held on the 10th September, 1948 and the Board recommended that:

" as an interim measure private candidates may be permitted to take the All India Intermediate Examination in Architecture on production of proof of employment for at least four years in an architect's office approved by the Board and the submission of prescribed testimonies in regard to studies. Such candidates are also required to satisfy the Board that they have successfully passed th elementary and preliminary

examinations of the courses before offering themselves for the Intermediate Examination in Architecture."

3. As regards the Council's resolution in respect of training of Engineering Diploma-holders serving in the Central Public Works Department, the Principal Delhi Polytechnic was requested to submit a draft scheme for the training of such employees on part-time basis for the All India Diploma Course in Engineering. The draft scheme formulated by the Principal, Delhi Polytechnic, along with the Council's resolution was considered by the All India Board of Technical Studies in Engineering and Metallurgy at its meeting held on the 21st September, 1949, and the Board observed that:

" In view of the recent relaxation in the rules and regulations governing the Associateship Examination of the Institution of Engineers (India) especially in respect of age limit of candidates the introduction of part-time All India Diploma Course in Engineering at the Delhi Polytechnic for the benefit of the C.P.W.D. employees did not have the same significance and importance as it did before the change in the regulations of the Institution of Engineers. Under the new regulations of the Institution of Engineers, the C.P.W.D. employees would be eligible for appearing for the Associateship Examination which is considered as equivalent to degree in engineering of Indian Universities for recruitment to Central Services."

" The Board was of the opinion that it would be be better for the employees of the C.P.W.D. to take the Associateship Examination rather than the All India Diploma Examination. Besides, organising part-time instructions for the All India Diploma Examination was not an easy one especially in consideration of the fact that the technical employees of the C.P.W.D. did not have uniform qualifications and widely differed in respect of their professional and academic attainments, whereas it would be easier to provide for part-time instructions for the Associateship

Examination of the Institution of Engineers. The Board therefore recommended that arrangements be made at the Delhi Polytechnic for the training of the technical employees of the C.P.W.D. for the Associateship Examination/part-time basis instead of for the All-India Diploma Examination."

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4. The recommendations of the All India Boards of Technical Studies in Architecture and Regional Planning, and Engineering and Metallurgy are now placed before the Co-ordinating Committee of the All India Council for Technical Education.

Annexure 18
Item No.8 of Agenda

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CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

MEMORANDUM.

Some of the students who have success-fully completed the All India Diploma/Certificate courses wish to know what abbreviations they can sufix to their respective names in recognition of the possession by them of the All India Diploma/Certificate awarded by the All India Council for Technical Education.

The Indian Institute of Science Bangalore, the Indian Agricultural Research Institute, and various other institutions have devised abbreviations for the Diplomas awarded by them and it is desirable that the Council also should decide on suitable abbreviations for the various All India Diplomas and Certificates.

The matter is referred to the Co-ordinating Committee for consideration.

The Council is at present awarding All India Diplomas and Certificates as shown below:-

All India Diplomas.

i) Engineering.
ii) Chemical Engineering & Technology.
iii) Architecture.
iv) Commerce.
v) Textile Technology.

ALL INDIA CERTIFICATE

i) Engineering.
ii) Commerce.

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All India Intermediate Certificate.

i) Architecture.

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EIGHTH MEETING.

Annexure 19
Item No.9 of Agenda.

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CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

MEMORANDUM.

At the instance of the Director of Industries (Education), United Provinces, the question whether the courses provided at the Government Central Textile Institute, Kanpur, can be deemed to be at par with the degree courses of the Universities was considered by the All India Boards of Technical Studies in Chemical Engineering and Chemical Technology and Textile Technology, at their meetings held on the 24th and 28th September, 1948 respectively. The Boards were of the view that the scope of the various subjects (both Theoretical and Practical) of the diploma courses of the institute was below the standard of degree courses in Universities. In arriving at this conclusion the Boards took note of the minimum educational qualifications for admission, the duration of courses and also the syllabuses of study. The Textile Technology Board urged that in the interests of maintaining efficient standards the Government of U.P. should withdraw the recognition accorded by them to the Diploma, as equivalent to University degree in the subject.

At its meeting held on the 4th October, 1948, the Co-ordinating Committee of the All India Council for Technical Education endorsed the above view of All India Boards of Technical Studies and desired that the same should be communicated to the F.P.S.C., U.P. Government the Government of India and other Provincial Governments concerned. The Government of United Provinces was accordingly addressed.

The old Boy's Association (Regd.) Government Central Textile Institute, Kanpur, protested against the above decisions of the Co-ordinating Committee and requested that the matter be reconsidered.

A copy of the letter No. 51/48-49 dated the 1st February, 1949 from the Honorary Secretary of the Association (appended hereto) was forwarded to the Government of U.P. for their comments if any. In their reply, the Provincial Government while admitting that the Diploma of the Central Textile Institute, Kanpur, could perhaps be deficient in certain general subjects as compared with the courses of the All India Council for Technical Education, expressed their inability to withdraw the recognition already accorded to the diploma of the institute, mainly due to the fact that the industries interested in the matter have generally appreciated the services of the passed students of the institute. However, the U.P. Government have agreed to bring up the existing courses at the institute in line with those of the All India Council for Technical Education and with this end in view, have referred the matter to their Technical Institutes Reorganisation Committee.

The matter is now referred to the Co-ordinating for Committee for consideration in the light of the above developments.

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Appendix 'A'

Copy of the letter No. 51/48-49 dated 1-2-49, from Secretary, Old Boy's Association, Government Central Textile Institute, Cawnpore, to the Chairman, Council of Technical Education Government of India, Delhi.

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Sub:- Recognition of diploma from Government Central Textile Institute, Kanpur equivalent to B.Sc. for purposes of recruitment to posts and services.

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Coming to understand that the Council of Technical Education has objected to the recognition of our diploma as mentioned above and has requested the U.P. Government to withdraw the same, I, on behalf of this Association request you to kindly let us have your views at your earliest convenience on the following points. It will help us to know full well whether the Council is justified in suggesting this:-.

1) Details of objections which have lead the Council to declare this recognition below par.

2) What are the actual requirements that the Council considers necessary to fullfil all the conditions for such recognition, if framed?

3) If not, then what is the justification of this objection?

4) Whether the Council is justified in taking such an objection concerning some institute which has not decided still whether it will affiliate with this Council or with any University?

5) Has the Council compared our syllabus with that of those institutions who actually award the degree of B. Text.? If so, where our syllabus has been found lacking.

Further I would like to clarify that we who are actually being benefited with this recognition have drawn a definite conclusion that it only raised our economic status; and in no way it has improved our social status which may be entirely a different aspect. Also this Association feels that any future scheme for improving academic status of technical courses shall not be admixed with this issue, which is of entirely different nature.

Lastly this Association also feels that this action of the Council is certainly hastly and that the Council has not taken pains to even investigate the matters with the responsible bodies pertaining to the issue, viz. Industries Department U.P., Institute, Reorganisation Committee, Technical Institute U.P. (who have recently surveyed the existing conditions of this institute) and lastly us, who are going to be very adversely affected by this decision should it be

implemented.

In the end, I take the liberty to state that this Association of the ex-students of this institute has firmly decided to fight this issue to the last, if the order is repeated without clarifying the affairs full well, and not affording us an opportunity to represent our case. It will extend, however, all its cooperation to the Council to decide the issue in full fairness of facts, if needed.

Hoping fervently that our appeal will receive due consideration and a favourable decision.

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Annexure 20.
Item No. 10 of Agenda

120 Eighth Meeting 100

Co-ordinating Committee of the
All India Council for Technical Education.

Memorandum.

At its meeting held on the 12th April, 1949, the Co-ordinating Committee appointed a small committee to collaborate with a committee of the Inter-University Board for reviewing the position of technical education in the Universities and for laying down general principles to be observed in regard to degree courses in engineering and technological subjects at the Universities.

The first meeting of this joint committee was held at Madras on the eighth November, 1949. The Committee after discussing the general aspects of the various issues adjourned to meet again sometimes in the first week of January 1950 for detailed discussion. Meanwhile members were requested to furnish their considered views on issues formulated at the meeting.

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The report of the committee, if finalised, will be made available to the members of the Co-ordinating Committee at the meeting.

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Annexure 21
Item No. 11 of Agenda

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Eighth Meeting.

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Co-ordinating Committee of the
All India Council for Technical Education

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Memorandum

At its meeting held on the 20th April, 1948, the Co-ordinating Committee considered a note from the Ministry of Labour, Government of India, regarding 'Safety Education in Engineering Colleges and Technological Institutions', and decided to refer the matter to the various Engineering Colleges for their views in the first instance.

The note was accordingly sent to the Principals of the various Engineering Colleges with a view to eliciting their views in the matter. Replies have been received from most of the institutions addressed and from the replies received so far there appears to be almost an unanimous

P.T.O.

and a favourable

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agreement on the necessity of including safety training in the curriculum for technical studies. The manner in which it should be imparted has, however been a matter on which divergent views have been expressed. A summary of the views expressed by different institutions is annended hereto. (Annendix A). The matter may perhaps be referred to theAll India Board of Technical Studies in Engineering and Metallurgy for further examination.

FCS.

Appendix A. 174

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Summary of views expressed by different Engineering Institutions on the question of introducing 'Safety Education' in the curricula of studies in Engineering Colleges.

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Bengal Engineering College :- The safety training should be taught in the 2nd year under the subject 'Sociology and Industrial Relations' and more elaborately in the 3rd and 4th year under the subject 'Organisation and Management Course'. Suitable rules and regulations on safety training should be formulated and introduced in our technical institutions.

Birla Engineering College. Compulsory paper in "Safety Education and Labour Welfare" should be introduced in all final examinations for engineering or industrial degree or diploma. This paper should be a part of "Workshop organisation and industrial management".

During the apprenticeship training, a definite period of training in the above subject appears necessary. Standard set of regulations should be drawn up for adoption all over India.

College of Engineering, Trivandrum. This subject should be included in the courses for mechanical and electrical engineering examinations as a part of sessional work only.

Thomason College of Engineering, Roorkee. Safety education should be a part of 'Workshop Organisation and Management'.

Engineering College, Jubbulpore. Safety education should be a subject for lectures under heading (i) 'Workshop Appliances and Practice' (ii) "Works Management, Economics and Accounts' in the Third and Fourth year classes respectively. This subject should be taught in the course of practical training.

College of Engineering, Guindy. Safety education should be included in the curriculam of studies for all mechanical and electrical courses. Special lectures and visual education should also be introduced on the subject.

College of Engineering, Annamalai University. Safety education should also form part of the syllabus and should be included in Workshop Theory Classes. Workshop should also be reorganised so that they serve as examples of accepted Safety Precautions. Brief reports of the procedure followed in U.K. and U.S.A. should also be obtained for guidance.

College of Engineering, Anantpur. This Safety Education should be taught under extra curricular activities and by means of films so that the regular curriculum does not become heavy.

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East Punjab Engineering College. Study of actual accidents has shown that very few cases have occured in case of persons who have passed through technical institutions because of the fact that they possess rudimentary knowledge of safety infactories. This education is necessary for those who join the factories without any previous technical education and the Management of the Factories should consider it their responsibility to impart necessary education in safety matters of such employees by means of films, slides, lectures, wall diagrams etc. The technical institutions should help in this work by including a more detailed study of the precautionary methods in their curricula so that the students passing through technical institutions who are emrloyed in the factories are made use of for teaching to the persons from the other category mentioned above. A comprehensive syllabus of safety education should therefore be drawn up by All India Council and all technical institutions should include it as a regular course of study and every student should pass an examination in the subject.

Annexure 22
Item No. 12 of Agenda

Eighth Meeting

Co-ordinating Committee of the
All India Council for Technical Education

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MEMORANDUM

At its fourth meeting held on the 15th November, 1947, it was reported to the Co-ordinating Committee that Major D.L.Deshpande, the then Principal of the Engineering College, Trivandrum was nominated by the Chairman to represent the All India Council for Technical Education on the Standing Advisory Committee on Power Engineering Department of the Indian Institute of Science, Bangalore. Major Deshpande has however ceased to be a member of the Council since. The Co-ordinating Committee may like to nominate a representative in place of Major Deshpande on the Standing Advisory Committee on Power Engineering Department of the Indian Institute of Science, Bangalore.

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Co-ordinating Committee of the
All India Council for Technical Education.

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Copy of letter dated the 19th November, 1949, from Mr. B.B.Joshi, to the Secretary, All India Council for Technical Education.

Re. 'Training within Industry for Supervisors'.

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I enclose herewith a copy of the 'Textile Digest' July/September,1949 and draw your attention to my lecture on the above subject published on page 83/85.

Personally I am of opinion that the Council should take up this question with the Ministry of Labour, as the scheme of training is practical and would produce immediate results so far as increase in production is concerned with reduction in cost.

If you desire further information I will be glad to furnish the same.

I represent All India Organisation of Industrial Employers on the Council of Technical Education.

Please acknowledge receipt.

Copy of lecture delivered by Mr. B.B.Joshi on the 28th August, 1949 on the question of starting a scheme for 'Training within Industry for Supervisors' in India.

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Training means "to treat so as to bring to the proper or desired form." It should have a definite goal. Goal of training is a developed and interested person who is able and wishes to do a job which is within his capacity effectively, both in quality and quantity. Training is also a part of the personnel work which should be a function of every one in a Company from

the Board of Directors downwards to the trade Union-representatives and workers.

The technique of training and scientific methods of studying the human mind and brain are subjects by themselves and out of the scope of this lecture. But, systematic training to staff is being slowly recognised as an integral part of the organisation of a Company. It produces direct and indirect benefit which can be measured in both human and financial terms. It is an important step in an Industrial democracy to enable the individual, as it has been said, "to count for as much as is in him in a society where everyone is not only allowed but trained, expected and required to count for as much as is in him".

THE GROUP CONFERENCE METHOD

We in this country know of apprentice courses, wiremen's classes and other forms of training but TWI is something quite different to these, and in fact does not take this place though it is complementary to them.

The Ministry of Labour and National Service in England trained some men in U.S.A. and launched a movement for this training in 1944.

The term 'supervisor' means anyone in an organisation who has the responsibility of directing the work of others. It applies to the senior executive down to the last supervisor over workers.

TWI does not involve lecture, but informal meetings planned for mature people already skilled in their special work.

We all do our job in a factory quite to the satisfaction of our superiors and ourselves, but the question arises when we ask ourselves, are we methodical, systematical, and regular? Can we improve our methods whereby we become more skilful and thus increase production and reduce costs?

In England and America Surerivsors possess the five fundamental needs, namely (1) knowledge of their particular job (2) knowledge of responsibilities (3) Skill in instructing (4) Skill in handling workers (5) Skill in improving methods. These are fundamental needs of supervisors. The first two are basic and under the TWI, no attempt is made to deal with them. Supervisor needs the other three skills of instructing, handling workers and improving methods.

The trainer is provided by the Ministry of Labour. He usually takes ten supervisors and they work together on 'group conference' lines during a series of five sessions of two hours each held on alternate days during working hours. This new method of approach by means of group discussion and actual demonstrations by members of a group forms a departure from previous methods in which apprentices or foremanship training has been given by a series of lectures. The scheme is therefore essentially practical.

The instruction is divided into various heads such as skill of (1) job instruction (2) job relations or handling workers and (3) job methods or improving methods.

There is a regular method followed by the Ministry of Labour and National Service for introduction of training programme.

On request from factories, a group conference of chief executives is organised by one of the TWI staff of the Ministry of Labour and National Service. If it is decided to persue the scheme, sessions are conducted for instruction in subjects stated above. The ministry provides the services of a trainer. Slowly, trainers are selected from amongst those who have understood the scheme which then spreads in bing organisations.

Trainers receive special instructions in the training course for a week. The instructor for trainers is a member of the Ministry's TWI staff who has specialised in this work. Trainers who are not upto the marks are disqualified.

The TWI programmes are not examinations. But management has begun to consider them on long-term basis as the principles involved in the programme are regularly and continuously applied. There is therefore a follow-up scheme for big firms and in small firms the senior supervisor who has qualified as trainer is asked to take up the responsibility.

The continuity of the scheme is then managements' responsibility. TWI is kept as a regular item as it were a normal production item on which reports are required on progress made and results achieved.

IT'S THE MAN THAT MATTERS MOST

It is my appeal to our Labour Ministry both in the centre and in provinces to arrange for a special department of TWI staff, if necessary by sending some experts for training to England and America so that TWI schemes on the lines suggested above may be soon introduced in our industries for better and more production.

It is alright to say that labour wages will not be reduced, but working hours will be reduced, "produce or perish," and similar slogans, but we who are in the industries for years, and manage them know very well what is that which would increase production and reduce costs, not the slogans, nor the regulations, directives, exhortations and committees. No doubt these have their uses but they alone will not produce more goods at the right price. What will do so is skilful and energetic management which, by its inspiration and leadership, stirs up in the workers an instinctive desire to give of their best; it creates a sense of loyalty to the firm and of respect for its chief and the emrloyee acquires personal satisfaction and joy of work well done. Those are the conditions that make work congenial and lead to high productivity. It is the function of management to create those conditions, and the Central Government Ministry of Labour should introduce a T.I scheme on lines suggested above to achieve high productivity before it is too late. "It is the man that matters most." This is the old truth we all must understand in a new light.

TWI scheme is a practical method of improving the ability of supervisors for guiding the worker so that he may turn out more production. I may suggest that the Government of India should be approached for starting this scheme under the Ministry of Labour. I may also suggest that Ahmedabad is in a stronger position to inaugurate the scheme with the assistance of Ahmedabad Textile Industries Research Association. Research, nowadays, is not confined to test tubes, but it is extended to the scientific study or labour employment in relation to work-load and training of staff as is being done by the Shirley Institute in Manchester. Let us hope Ahmedabad gives a lead which the country needs, so far as TWI is concerned. Your branch can contact the Millowners Association and the Ahmedabad Textile Industries Research Association so that the Ministry of Labour can be approached for shaping this proposal for practical benefits to the industry and the country.

Annexure 24.
Item No. 15(a)i of Agenda.

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Eight Meeting.

Co-ordinating Committee of the
All India Council for Technical Education

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MEMORANDUM

The All India Board of Technical Studies in Engineering and Metallurgy at its 2nd Meeting held in August, 1947, revised the syllabuses for the All India Diploma Courses in Civil, Mechanical and Electrical Engineering. The revised syllabus for the All India Diploma Course in Electrical Engineering was introduced in Delhi Polytechnic, Delhi, the only affiliated institution for the All India Courses in Electrical Engineering, from the Session commencing in 1947, and the first batch of students trained according to the revised scheme, will appear for the final All India Diploma Examination in Electrical Engineering in April/May 1950.

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by the Board and have passed the first and second year examinations conducted by the institute. A special mention should be made in the certificate, of the candidate having passed the examinations held in subjects not covered by the final examination held by the Board.

C. The laboratory course should cover the entire syllabus in each subject for which work is prescribed and the candidates should perform at least 75 percent of the total number of experiments for the course.

D. The marks assigned to the practical and the Drawing and Design examinations will be apportioned as follows :-

Practical examination	-Experimental work	50
	Viva Voce	20
		70
Drawing & Design	Drawings	50
	Reports	20
	Viva Voce	30
		100

The above will be treated as a directive to the examiners and the marksheet submitted will show totals i.e. out of 70 and 100 marks respectively.

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Co-ordinating Committee of the
All India Council for Technical Education

MEMORANDUM

Subject:- Reconsideration of functions of Regional Committees vis-a-vis All India Boards in respect of Examinations.

The All India Board of Technical Studies in Commerce and Business Administration at its meeting held on the 13th September, 1948 considered the functions of the All-India Board of Technical Studies in relation to other Committees of the Council, viz. Co-ordinating Committee and Regional Committees. It was the unanimous opinion of the Board that the delegation of the functions

i) to appoint Boards of Examiners, taking into consideration the recommendations of the Boards of Technical Studies concerned and to arrange for the proper conduct of examinations;

ii) to publish the results of the examinations;

iii) to send report to the Co-ordinating Committee about the conduct of examinations periodically;

to the Regional Committees was likely to cause lowering of standards and other complications. The Board, therefore, recommended to the Council that the above functions be excluded from the scope of work of the Regional Committees and delegated to the Boards at least for the next 5 years.

The above matter was considered by the Co-ordinating Committee at its seventh meeting held on the 12th April, 1949, and the Committee was not in favour of "modifying the constitution and functions of the Boards and Regional Committees as approved by the Council".

The All India Board of Technical Studies in Commerce at its meeting held on the 5th October, 1949, considered the above decision of the Co-ordinating Committee and was of the emphatic view that the delegation of functions connected with the conduct of examinations of the Council to the Regional Committees would defeat one of the main purposes for which the Board had been appointed by the Council. In any All-India Scheme of Commercial education, examinations play a very important role. If the scheme

were to be successful, examinations conducted at various centres should be uniform and should conform to certain standards as laid down by the Board as an academic body from time to time. If the conduct of the examinations, especially in respect of appointment of examiners, moderation of question-papers, declaration of results etc., is to be placed in the hands of the Regional Committees, then there would be four Regional Committees responsible for conducting examinations in four regions. Under such circumstances there is little likelihood of co-ordination between the various Committees, nor would uniformity of standards in the examinations be maintained. Such a situation is not desirable in the context of the objectives of the All-India Board of Technical Studies in Commerce and hence the Board should continue to be responsible for the conduct of the examinations. At best the Regional Committees can in the matter of examinations only act as executive organisations of the Boards to carry out the decisions of the Boards. The Board, therefore, strongly recommended to the Co-ordinating Committee that the latter's decision should be reviewed in the light of the above and the conduct of the examinations of the Council be continued in future as the main responsibility of the Boards providing for whatever executive help Regional Committees might be able to give to the Board in this regard.

FCS.

Annexure 26 of Agenda
Item 15(a) (iii)

Eighth Meeting.

Co-ordinating Committee of the
All India Council for Technical Education

Subject:- Appointment of Council's representatives on All-India Boards.

Mr. K.D.Jalan, Lala Sri Ram and Mr. H.N.Dallas had been appointed as representatives of the Council on the following All-India Boards of Technical Studies' :-

Mr. K.D.Jalan	-Commerce and Business Administration Board.
Lala Sri Ram	Textile Technology Board.
Mr. H.N.Dallas	Architecture Board

The above gentlemen have now ceased to be members of the Council and hence have ceased to be members of their respective Boards. It is, therefore, for consideration as to what recommendations should be made to the Council to replace them on the Boards.

By Air Mail

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GOVERNMENT OF MADRAS.
Education & Public Health Department.
Letter No. 101466-C1/49-1 Edn.

From

J.M.Lobo Prabhu Esq., I.C.S.,
Secretary to Government.

To

The Secretary,
All India Council for Technical Education,
Govt. of India, Ministry of Education,
New Delhi 3.

Fort St.George, Madras, dated 4-1-1950.

Sir,

Sub:- All India Council for Technical Education -
Co-ordinating Committee - Meeting.

With reference to your letter No. F.1-11/49-T-2 dated 20-12-49, addressed to the Hon'ble Minister for Education, I am directed to state the Hon'ble Minister is not able to attend the meeting of the Co-ordinating Committee to be held on the 12th January 1950 as he has to attend the meetings of the Standing Finance Committee in connection with the Budget Estimate for 1950-51. Hon'ble Minister desires to know whether the Director of Public Instruction or the Director of Industries & Commerce may be deputed to attend the meeting in his place. I am to request that a reply to this may be sent by Telegram.

Yours faithfully,

4/1/50 G/C.

Secretary to Government.

2 air copies below

REGISTERED

MINISTER FOR EDUCATION
A
23 DEC 1949
GOVT. OF MADRAS

No. F. 1-19/49-T2.
Government of India.
Ministry of Education.

New Delhi, the 19th December, 1949.

Sub:- Co-ordinating Committee of the All India Council for Technical Education-Eighth Meeting- Agenda.

Dear Sir,

In continuation of my letter No. F.1-19/49-T2, dated the 17th December 1949, I forward herewith the following additional papers in connection with the eighth meeting of the Co-ordinating Committee of the All India Council for Technical Education:-

1. Supplementary agenda and papers connected therewith.

2. A copy of a letter dated the 15th December, 1949 from the Secretary, Madras Institute of Technology requesting for grant-in-aid to the Institute. (This will be considered with item No. 4, Annexure 8, of the agenda).

P.T.O.

The meeting will be held at 10-00 A.M. on the 12th January, 1950 in the Cabinet Room, West Bengal Secretariat, Calcutta, and continued on 13th January, 1950 if necessary.

Yours faithfully,

G.K. Chandiramani

(G.K.Chandiramani),
Secretary,
All India Council for Technical Education.

To.

All members of the Co-ordinating Committee.

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CO-ORDINATING COMMITTEE OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

Eighth Meeting.

Place: Calcutta Date: 12th January, 1950.

Supplementary Agenda.

The following will be considered by the Committee under Item No. 15 of the agenda- Any other business:-

15(a)(iv) Consideration of recognition of Chemical Engineering Degree of College of Engineering and Technology, Jadavpur.

Annexure 27.

15(a)(v) Consideration of the desirability or otherwise of the award of the All India Diploma of the All India Council for Technical Education to the candidates who passed the All India Senior Diploma Examinations in (i) Engineering (ii) Commerce and (iii) Chemical Engineering and Chemical Technology conducted by the Association of Principals of Technical Institutions (India).

Annexure 28.

P.T.O.

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15 (b) (i) To approve of the appointment of Sri S.M.Sen as an Assistant Professor in the Electrical Engineering Department of the College of Engineering & Technology, Bengal, Jadavpur".

Annexure 29.

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(114)

Copy of a letter dated the 15th December 1949 from the Secretary, Madras Institute of Technology to the Secretary, All India Council for Technical Education.

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The above Institute was incorporated in May 1947 with the objective of training Engineering Scientists by offering theoreical and practical courses linking science and Engineering and giving the students a correct attitude to Engineering in the field of its application to the Technical and Industrial needs of the country. We felt that any new Engineering Institution should hereafter meet the need for creative thinking and ~~x~~ critical enquiry giving greater opportunity for wider application to Industrial development.

Soon after, Sri N.R. Sirkar was kind enough to visit the place and approve the scheme and location; and encouraged us to go ahead with our proposals.

We then resolved to start the following four courses. These were chosen as they had not then, been started anywhere else and the need for them was keenly felt.

1.Electronics: comprising Radio design, manufacture and transmission, Radar, Television and allied Arts.

2. INSTRUMENT TECHNOLOGY: comprising the design and manufacture of precision instruments both for the laboratory and Industrial and commercial use, including Hydraulic, Pneumatic, Electrical, Automobile and Aeronautical and Horological instruments.

3. AUTOMOBILE ENGINEERING: combining theory and practice of the design and manufacture of Engines used in transport work, design and construction of Chassis and running gear and appurtenances:

4. Aeronautical Engineering: closely allied to automobile Engineering in the design and manufacture of Internal combustion Engines, turbines, jets and the like as applied to aerial transport, design and construction of the fuselage and wings and appurtenances of Aeroplanes.

For this purpose 57 acres of land adjoining the Chromepet Railway Station was acquired by the Institute and the buildings and hangershousing the Naval Stores located thereon were acquired in conjunction with the Madras Government, each taking a part Buildings and hangers were put in our possession in Sept-Oct. 1948.

In November 1948, we interviewed the Prime Minister and other ministers of the Government of India who encouraged us to proceed with the work saying that both Central and Provincial Governments would render help

As a First aid, the Institute was put in the list of Approved Institutions under Sect: 15 (of the Incometax Act and the grant of Machine tools at 10% of cost from the Disposals.

The Commercial community, satisfied with the need for such an Institution, encouraged us in our efforts. Donations came in mainly from European Firms. Indian firms however were slow to come for help because of the want of Government Recognition and Tangible Government grants and the consequent uncertainty about the future of the Institute.

In the eight months October 1948 to July 1949, we got ready 90,600 sq. ft. of Building area together with complete water supply and sanitation and partially lecture halls, Drawing halls, Carpenter and fitter benches, woodworking machines, Library and Laboratory.

Advertisements inviting applications were inserted in all the leading dailies of India, and over 500 applications were ~~x~~ received-all from graduates in Science with Mathematics and Physics as their main subjects of study. 84 of these were selected and admitted. The Institute started functioning on the 18th July 1949. The Institution was inaugurated by the Premier of Madras, and an extract of some of the relevent remarks made by him during the inaugration will be found at pages 9 and 10 of the report of the institute up to 30-9-49.

The Institute has had the continued honorary services of Sri.L. Venkatakrishnan, a retired Chief Engineer of the Madras P.W.D. a doyan of the Cauvery Mettur Project with 7½ years experience of Dam Construction, Research Station and Mechanical Equipment, two years experience as the Professor of Mechanical Engineering at the Madras College of Engineering, Guindy, the Chairman of the Madras Provincial Housing Committee, a member of the Madras Retrenchment and Reorganisation committee, and the Chairman of the Madras Flying Club.

The Institute is staffed with 17 enthusiasts headed by Sri M.K. Ranganathan, B.A., B.E., A.M.M.E., Assoc. I.E.E., another retired Chief Engineer of the Madras P.W.D. an outstanding Mechanical Engineering with 30 years active experience of the requirements of the country, with two years experience as professor of Mechanical Engineering in the Madras Engineering College, Guindy, and widely travelled in countries such as Europe, America, Japan, and China, as its Principal. Mr. K.B.Krishna Rao B.A., B.E., M.I.E.(Ind) . till recently the professor of Mechanical

Engineering at the Indian Institute of Science Bangalore as the Professor of Mechanical Engineering, and two professors of science with Doctorate qualifications of British Universities. In addition to its staff, the Institute is helped in its work by a Technical Advisory Panel of 18 men of outstanding merit with Dr. K.S.Krishnan at its head, and four Boards of studies in Electronics, Instrument Technology, Automobile Engineering and Aeronautical Engineering, consisting of another 40 men of eminence, as would be seen from the lists at pages 3-6 of the report referred to above.

The First year's course of basic Engineering is now being taught. For the second year, commencing from July 1950, the construction of a hostel for a further batch of 100 students, construction and equipment of four laboratories and lecture Halls for the specialised courses, provisim for workshop equipment etc, should now commence. Of these, work on two of the laboratories and lecture Halls are now in progress and have to be completed.

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As a First aid, the Institute was put in the list of Approved Institutions under Sect: 15 (of the Incometax Act and the grant of Machine tools at 10% of cost from the Disposals.

The Commercial community, satisfied with the need for such an Institution, encouraged us in our efforts. Donations came in mainly from European Firms. Indian firms however were slow to come for help because of the want of Government Recognition and Tangible Government grants and the consequent uncertainty about the future of the Institute.

In the eight months October 1948 to July 1949, we got ready 90,600 sq. ft. of Building area together with complete water supply and sanita-

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We interviewed the Prime Minister on 13-12-49 and reported to him the progress so far made and what remained to be done. He stated that the work of the Institute should be positively helped and directed his Secretary to see that immediate help was given by the Education, Industries and Supplies and other departments, and suggested we should also see them. We interviewed Dr. Tara Chand, the Secretary for the Education Department. He explained that his Department of General Education was not as such in a position to render help, and that we should approach the All India Council of Technical Education, and its favourable recommendation would enable him to secure and sanction the requisite financial aid.

We request that your Council may consider the progress made, the work done so far and buildings and equipment provided, the fact that the first session of the courses are already in operation and recommended a substantial Financial aid to enable the fruition of the objectives.

Thanking you,

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M.K. Ranganathan, B.A., B.E., Assoc. A.E.E., [illegible]
Engineer of the Madras P.W.D. an outstanding Mechanical Engineering with 30 years active experience of the requirements of the country, with two years experience as professor of Mechanical Engineering in the Madras Engineering College, Guindy, and widely travelled in countries such as Europe, America, Japan, and China, as its Principal. Mr. K.B.Krishna Rao B.A., B.E., M.I.E.(Ind) . till recently the professor of Mechanical

Annexure 27
Item No.15(a)(iv) of Agenda.

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Eighth meeting.

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CO-ORDINATIONG COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

Memorandum.

The Government of Bengal in their letter dated the 14th June, 1946, asked the Government of India for their views on the advisibility of recognising the degrees and diplomas granted by the College of Engineering and Technology, Jadavpur, in Mechanical, Electrical and Chemical Engineering for purposes of recruitment to Engineering Services and for admission to post-graduate classes in Indian Universities.

2. The matter first came up for consideration before the Co-ordinating Committee at its Second meeting held on the 5th February, 1947 and it was decided to invite the expert opinion of the Syllabus Committees of the All India Boards of Technical Studies in Engineering and Metallurgy and Chemical Engineering and Chemical Technology.

3. The views of the Syllabus Committees were considered by the respective Boards at their meetings held during September 1948. The All India Board of Technical Studies in Engineering and Metallurgy expressed the opinion that the degrees awarded by the College of Engineering and Technology, Jadavpur, were equivalent in standard to the All India Diploma Courses, which are in turn considered as equivalent in standard to University Degrees. The Board also recommended that the Degree in Engineering of Jadavpur institution should be recognised for purposes of admission to post-graduate courses in Engineering in Indian Universities. The All India Board of Technical Studies in Chemical Engineering and Chemical Technology, however, appointed a Sub-committee to visit the institution and to submit a report on the standard of the Chemical Engineering Course.

4. The recommendations of the Engineering Board were placed before the Co-ordinating Committee at its meeting held on the 12th April, 1949, and the Committee decided that the Government of west Bengal be informed of the views of the Boards of Technical

Studies and the Ministry of Education may take up the matter with the Inter University Board. The Committee also authorised the Chairman to take action as indicated above, on receipt of the report from the All India Board of Technical Studies in Chemical Engineering and Chemical Technology.

5. The Visiting Committee appointed by the Board ~~Engineering~~ inspected the College of Engineering and Technology Jadavpur in March, 1949, and submitted a report to the Board. The report was considered by the Chemical Engineering Board at its last meeting held on the 11th August, 1949, and the Board approved the recommendations of the Visiting Committee, viz

"The Degree course in Chemical Engineering of the College of Engineering and Technology, Jadavpur, be considered as equivalent to degree in the same subjects awarded by Universities, for purposes of admitting such candidates to post-graduate courses and for research work in Indian Universities and Research Institutions. This recommendation is, however, subject to the inclusion of practical examinations in Chemical Engineering and Technical Analysis and also provision of adequate credit for the general performance of the students troughout their courses of study."

Annexure 28 Eighth meeting.
Item No.15(a)(v) of Agenda.

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CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL EDUCATION.

Memorandum.

With a view to achieving a uniformly high standard of technical education throughout the country, designed specially to meet the Country's changing needs, the Association of Principals of Technical Institutions (India) considered the question of introducing a National Certificate and Diploma Scheme similar to that obtaining in the United Kingdom and set up the following Committees to prepare detailed Schemes and to put them into effect :-

a) All India Board of Commercial Studies (1943)
b) All India Board of Engineering Studies (1944)
c) All India Board of Chemical Engineering and Technological Studies. (1945)
d) All India Board of Textile Studies. (1945)

2. The above All India Boards held the following examinations under their respective Schemes :

Name of Examination.	No. of successful candidates.
All India Senior Diploma in Engineering.	13
All India Senior Certificate in Engineering.	5
All India Diploma in Chemical Engineering and Chemical Technology.	4
All India Senior Diploma in Commerce.	9
All India Senior Certificate in Commerce.	5

2. At its inaugural meeting held in April-May 1946 the All India Council for Technical Education reviewed the work of the above Boards and came to the conclusion that in order to attain the very desirable objectives which had led the Association of Principals of Technical Institutions (India) to set up the Boards, it was necessary to set up corresponding All India Boards of Technical Studies under the aegis of the Council itself merging the A.I.T.I.(I)'s Boards into the proposed new Boards.

The Government of India accerted the Council's recommendations; and with the concurrence of the Association of Principals of Technical Institutions (India) the above mentioned Boards of Studies were taken over by the Council in 1946 and re-constituted them under the aegis on the Council as All India Boards of Technical Studies in

a) Commerce & Business Administration

b) Engineering & Metallurgy

c) Chemical Engineering & Chemical Technology

d) Architecture & Regional Planning

e) Textile Technology

f) Applied Art.

Now All India Diploma & Certificate Examinations in the various branches of technology, Architecture & Commerce are being held under the ausrices of the Council and the Diplomas and Certificates are awarded by the Council. Consequent on Govts. recognition of All India Council for Technical Education Diplomas as equivalent to University degree for purposes of recruitment to Central Services, students, who have passed the All India Diploma Examinations, held by the Association of Principals of Technical Institution have represented that they should be awarded the corresponding diplomas of the Council, as the Council has taken over the Association of Principals of Technical Institutions Boards of technical studies. The Executive Committee of Association of Principals of Technical Institution at its meeting held on the 5th November, 1949, considered the matter and passed the following resolutions :-

"Resolved that the Diplomas and Certificates be awarded by the Association to all successful candidates of 1945 who have completed their practical training in recognised firms.

Resolved further that the All India Council be requested to recognise these Diplomas and Certificates as equivalent to their own - The All India Council diplomas having already been recognised as the equivalents of University Degrees, for the purpose of recognition by the Federal Public Service

Commission and the Central Government"

The matter is placed before the Co-ordinating Committee for consideration. In this connection it may be mentioned that although the Association of Principal of Technical Institution Boards have been taken over by the Council reconstituted under the Councils ausrices the All India Schemes of technical education of the Council in Commerce, Engineering, Chemical Technology in respect of syllabuses, curricula and examination system have upto now remained the same as those of Association of Principals of Technical Institution. Whatever revisions have been introduced by the Boards will take effect only with examinations to be held in April 1950. It is also to be noted that the Examinations of 1945 were conducted by Association of Principals of Technical Institution but the Council declared the results and awarded Diplomas and Certificates to successful candidates.

202

8th meeting.

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Annexure 29
Item No.15(b)(i) of Agenda.

CO-ORDINATING COMMITTEE
OF THE
ALL INDIA COUNCIL FOR TECHNICAL
EDUCATION.

Subject : Appointment of Sri S.M. Sen as Assistant Professor in the Electrical Engineering Department of the College of Engineering and Technology, Jadavpur.

Sri S.M. Sen, M.S. (Illinois) has been appointed as an Assistant Professor of Communications Engineering on Rs. 500/- in the scale of Rs. 300-20-600 at the College of Engineering and Technology, Bengal, Jadavpur, with effect from 12th August, 1949, on the recommendation of a sub-committee appointed by the College Council for the purpose. As this Committee did not include any independent experts from the panels approved by the All India Council for Technical Education, as required by clause (ii) of the conditions governing grants, the institution has applied for the approval of the Co-ordinating

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(2)

Committee of the All India Council for Technical Education to the aforesaid appointment.

A statement giving the qualifications and experience of Sri S.M. Sen and a copy of the Report of the Sub-Committee mentioned above are appended hereto (Appendices I & II).

following resolutions :-

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Appendix I.

STATEMENT OF QUALIFICATIONS.

Name : Sachindra Mohan Sen

Date and Place of Birth : 19th November, 1920: Patna (Bihar)

ACADEMIC WORK, DEGREES OBTAINED WITH DATE AND UNIVERSITY: ETC.

Year.	Degree.	University.	Class.	Subjects.
1941	B.Sc.(Hons.)	Dacca University.	First class	Physics (major chemistry, Mathematics(minor)
1942	M.Sc.	"	"	Physics (Specially Wireless communication.
1945	D.I.I.Sc.	Indian Institute of Science.	No class.	Electrical Communication Engg.(mechanical, civil, power, telegraph telephone and radio communications)
1947	M.S.	University of Illinois, U.S.A.	No class.	Electrical (Communications) Engineering advanced work.
1948	Ph.D. (Preliminary)	University of Illinois, U.S.A.	Course not completed.	Electrical Engineering (Communications)

DISTINCTIONS AND MEMBERSHIP OF LEARNED BODIES.

1. Stood first in aggregate (Honours and Subsidiary) among all B.A. & B.Sc. Honours Candidates in 1941 from Dacca University.
2. Selected by Govt. of Bengal for studying Electrical Engineering at the Indian Institute of Science, Bangalore, and was awarded a scholarship tenable for 3 years.
3. Selected by Govt. of India for studies in U.S.A.
4. Elected member of National Electrical Engineering Society of the U.S.A. (ETA KAPPA NU)
5. Elected member of National Mathematics Society of the U.S.A. (PI MU EPSILON)
6. Elected full member of the Institute of Radio Engineers, Inc. U.S.A.

Sd.T.Sen.
20/12

INDUSTRIAL, RESEARCH, TEACHING EXPERIENCES.

1. Three months in summer of 1943 in the Calcutta Corporation Mechanical workshop.
2. Three months in summer of 1944 in the Kashmir Government Hydroelectric Department.
3. Three months in summer 1945 in the Indian Radio and Cable Communications, Bombay - working with overseas telegraph, telephone, picture communications in their transmitting, receiving Stations and central telegraph office in Bombay.
4. Laboratory work in the University of Illinois in ultra high frequency for 4 months in 1947.
5. Development work in travelling wave tube amplifiers in 1947 for 4 months, on a United States Navy Project as a member of the staff.
6. Modern Laboratory Practice including glass-metal, glass-glass, glass-ceramic, metal-ceramic seals, etc., for 4 months in 1948.
7. work as a member of the Engineering Staff of the United Broadcasting Co., Clevel and, Ohio for 8 months in 1948 - 49 on Amrtitude modulated Frequency modulated transmitters, Studios etc. work as an Assistant consultant to Mr. C.E. Smith, Vice-President, in charge of Engineering, U.B.C. on Field strength measurements of A-M, F-M and Television stations. Also research work on Antenna Top-loading which led to a U.S. Airforce Project.
8. Work with 50 Kw A.M. transmitters with the Westinghouse Elec. Corporation, Baltmore, Md. for 2 months in 1949.
9. Research work on Electrical Interference to Radio Reception for 1 year at the Dacca University in 1941-42.
10. Teaching at the College of Engineering & Technology, Bengal since August, 1949.

Sd. T.Sen.
20/12

Appendix II.

Copy of
Report of the Sub-Committee, appointed by the College Council re: selection of a candidate for the post of a Professor of Communication Engineering.

Members of the Sub-Committee present :

1. Prof. Dr. S.K. Mitra, D.Sc., M.B.E., F.N.I., Ghosh Professor of Physics, University College of Science, Calcutta University
2. Sri H.I. Bhaumik, B.A., C.B.E., Retired Post Master General, Ex-President of the Institution of Engineers (India)
3. Principal Dr. T.Sen.
4. Prof. H.C. Guha, Professor-in-Charge of the Electrical Engineering Dept. of the College.

Four candidates were called for interview on the 29th July, 1949. The following three applicants were present :

1. Sri S.M. Sen
2. Sri Mohi Mohan Mookherji
3. Sri Sailendra Kumar De Purkayastha.

In the opinion of the Selection Sub-Committee none

telephone, [illegible]

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of the candidates were found fit for the post of Professor in Communication Engineering. Of thr three candidates, present for interview, Sri S.M. Sen M.S.(Illinois) appeared to be the best. So the Committee recommended Sri S.M. Sen for the post of Assistant Professor of Communication Engineering on a starting salary of Rs. 500/- in the grade Rs. 300-20-600/-

B. I. Cable **INDIAN POSTS AND TELEGRAPHS DEPARTMENT.** No.

Recd. at ____ H. ____ M. | Sent at ____ H. ____ M. | Office Stamp

From ____ | To ____

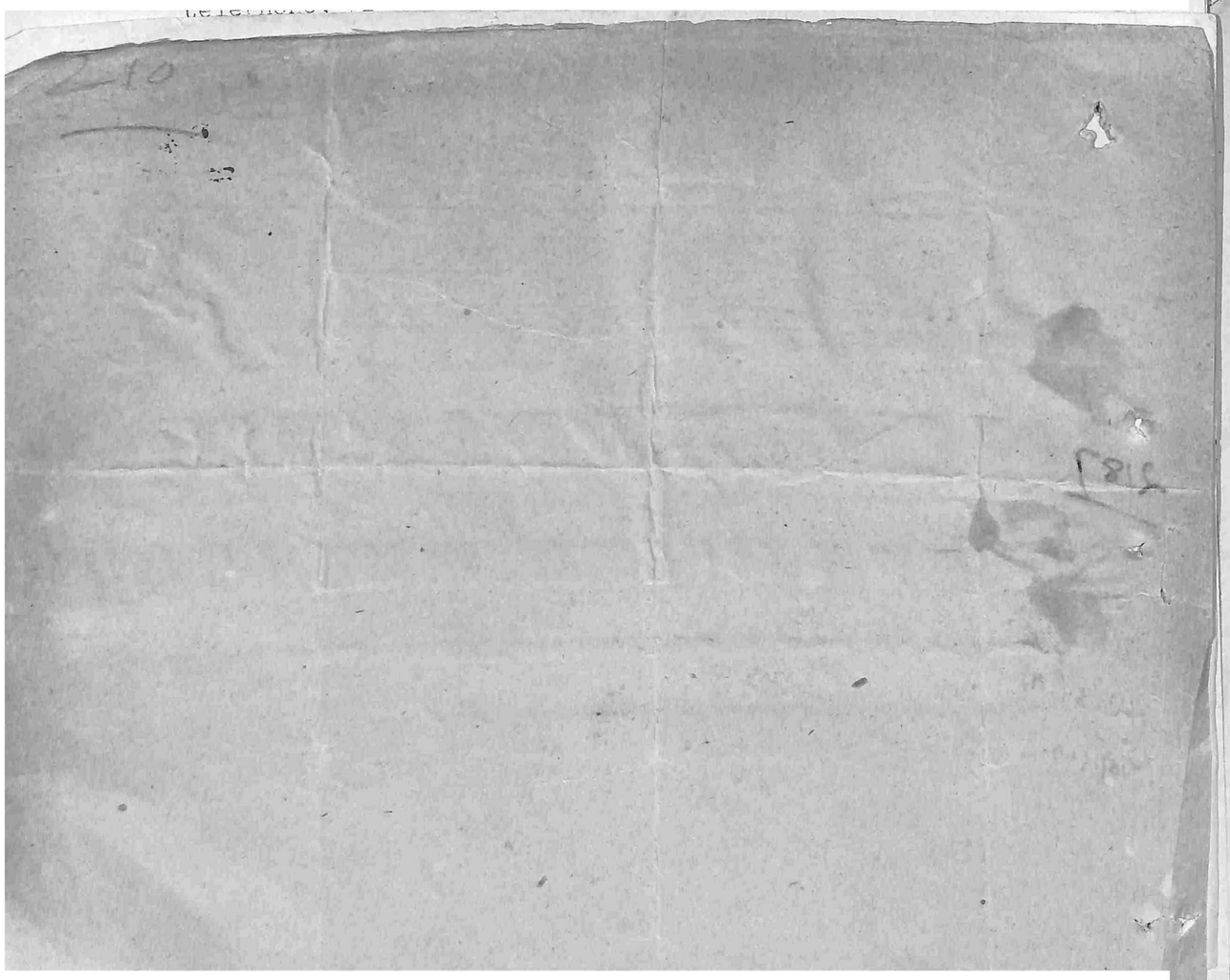
By ____ | By ____

X WF NEW DELHI 9 STE 34 SECRETARY EDUCATION AND PUBLIC HEALTH DEPTT MADRAS =

2187

NO F -1-11/49- T-2 YOUR LETTER 101466- C I /49-1- EDN 4 TH JANUARY (.)

EDUCATION MINISTER MADRAS MAY DEPUTE HIS NOMINEE TO ATTEND COORDINATING COMMITTEE MEETING (.) = CHANDIRAMANI EDUCIND =



Ex Press

Edn. & P.H. Dept. (Cl)

~~Draft~~ TELEGRAM.

To

D.S. Reddi,
~~D.P.I.~~, Madras,
Care D.P.I., Cuttack.

Co-ordinating Committee of ~~the~~ All India Council for Technical Education meets Cabinet Room West Bengal Secretariat on 12th January. Please attend ~~the~~ meeting in place of Hon'ble Minister for Education.

15/1/50

10/1/50

Despd (3.P.M).
S/10/1/50.

Letter No. 10146-C/49-2 Edn. dated 10-1-50 Education & P.H. Dept (C)

912

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By Air Mail

From

The Asst Secretary
Edn & P.H. Dept.

To

The Secretary
All India Council for Technical
Education
West Bengal Secretariat
Calcutta

Sept 4 AM 9/1/50

Sir,

All India Council for Technical Education Co-ordinating Committee - Meeting at Calcutta - Your Telegram dt 9th Jan 1950.

I am directed to State that Sri D.S. Reddi M.A. (Oxon) Director of Public Instruction, Madras, who is at present attending the meeting of the Central Advisory Board of Education at Cuttack, has been deputed to attend the ~~Assembly~~ meeting of the Co-ordinating Committee of the All India Council for Technical Education at Calcutta on the 12th Jan 1950 instead of the Hon'ble the Minister for Education Madras.

Yours faithfully.

Dy 10/1/50

DSM 10/1/50

(M.S.-2) Copy sent
10/1/50

From The Director of Public Instruction, M a d r a s.

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To The Secretary to Government,
Education and Public Health Department.

C. No. 75 C1/50 dated 16.1.1950.

18 JAN 1950

S i r,

Sub: All-India Council for Technical Education - Co-ordinating Committee - Attendance at the Calcutta Meeting in the place of Hon'ble the Minister for Education.

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4098

p 211 ante

The Government telegram sent to Cuttack instructing me to attend the meeting of the Co-ordinating Committee of the All-India Council for Technical Education held at Calcutta on 12th January 1950 was received by me here by post on 13-1-1950 A.N. after being re-directed from Cuttack. I could not, therefore, proceed to Calcutta as instructed.

for Director of Public Instruction.

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ASST. SECRETARY TO GOVERNMENT
21 JAN 1950
EDUCATION AND PUBLIC HEALTH DEPT.

No.F.1-11/49-T.2
Government of India,
Ministry of Education,

New Delhi, dated the 20th January, 1950.

From

Secretary to the Govt. of India,
Ministry of Education.

To

5457

The Secretary to the Govt. of Madras,
Education and Public Health Deptt.,
Madras.

Subject:- All India Council for Technical Education-Coordinating Committee- Meeting at Calcutta.

- - - - - -

Sir,

I am directed to refer to your letter P 212 auto No. 101466-C1/49-Edn., dated the 10th January, 1950 on the above subject and to say that Sri D.S.Reddi, Director of Public Instructions did not attend the meeting of the Coordinating Committee held at Calcutta on the 12th January, 1950.

Yours faithfully,

(G.K.Chandiramani) 19/1/50
for Secretary.

SALUJA

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Edn
D

Letter No. 101466-D/49-3 Edn dated 20/4/50 (127)

Ref

To,

The Secretary, (Minister of Edn., Govt. of India)
All India Council for Technical Education, New Delhi

Sir,

Coordinating committee of the All India council for Technical Education - 8th meeting

I am directed to request you to kindly furnish me with a copy of the proceedings of the 8th meeting of the coordinating committee of the All India Council for Technical Education held at Calcutta on the 12th January, 1950 fair typed

Yours faithfully,

KB
19/4/50

19/4/50

28/4/50

No.F.1-1/50-T.2
Government of India
Ministry of Education
New Delhi, the 3rd May 1950

To
The Secretary to the Government of Madras,
Education Department,
Madras.

Subject:-Co-ordinating Committee of the All India Council for Technical Education -Eighth Meeting-Proceedings.

Sir,

With reference to your letter No.101466-D/49-3 Education, dated the 20th April 1950 on the above subject, I am directed to send herewith a copy of the proceedings of the eighth meeting of the Co-ordinating Committee of the All India Council for Technical Education held on the 12th January 1950.

Yours faithfully,
Chandrakant.
(L.S.Chandrakant)
for Secretary,
All India Council for Technical Education.

ASSISTANT SECRETARY
5 MAY 1950
EDUCATION DEPARTMENT

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Proceedings of the eighth meeting of the Coordinating Committee of the All India Council for Technical Education held at Calcutta on the 12th January 1950.

The eighth meeting of the Coordinating Committee of the All India Council for Technical Education was held at Calcutta on the 12th January 1950 at 10 a. m. in the Cabinet Room of the Government of West Bengal. The Hon'ble Mr. Nalini Ranjan Sarker, Chairman of the Committee, could not attend for reasons of health and in his absence, Dr. Tara Chand presided.

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Members present

1) Dr. Tara Chand (Chairman)
2) The Hon'ble Mr. Harendra Nath Choudhury
3) Mr. M.F. Gandhi
4) Dr. J.C. Ghosh
5) Mr. A,N. Khosla
6) Mr. V. Lakshminarayanan
7) Miss Maniben Kara
8) Mr. C.M. Master
9) Mr. N.K. Mitra
10) Dr. H.L. Roy
11) Dr. S.R. Sen Gupta
12) Mr. Rathindra Nath Tagore
13) Mr. J.A. Taraporevala

Mr. G.K. Chandiramani (Secretary)

Dr. D.M. Sen, Secretary, Education Department Government of West Bengal, also attended.

Mr. Vithal N.Chandvarkar, Dr. P.S.Deshmukh, Pandit Govind Malaviya, Mr. V. Narahari Rao and Dr. A.H. Pandya were unable to attend.

This being the first meeting of the reconstituted Coordinating Committee, the Chairman welcomed the new members (Mr. M.F. Gandhi, Mr. A.N. Khosla, Mr. V. Lakshminarayanan, Pandit Govind Malaviya, Dr. S.R.Sen Gupta and Mr. J.A. Taraporevala). At his instance, the Committee decided to place on record its appreciation of the services rendered by outgoing members (Dr. S.S.Bhatnagar, Dr. K.A.Hamied,

Dr. J.M. Mehta, Hon'ble Minister for Finance, East Punjab Mr. N.V. Modak and Dr. A.L. Mudaliar).

The agenda of the meeting was then taken up.

Item No.1: To report that the proceedings of the seventh meeting of the Coordinating Committee held at Calcutta on the 12th April 1949 have been confirmed by circulation to members.

Arising out of the proceedings of the seventh meeting of the Committee, the Chairman informed the Committee that owing to lack of time the Universities Commission had not been able to deal with the question of establishment of a National Technical University which was referred to it by the Coordinating Committee.

It was decided that a sub-committee conssiting of the following should consider the question in all its aspects and report to the Council at an early date:

Dr. J.C. Ghosh (Convener)
Mr. M.P. Gandhi
Mr. A.N. Khosla
Mr. N.K. Mitra
Dr. S.R. Sen Gupta
Mr. J.A. Taraporevala
Mr. G.K.Chandiramani (Secretary)

Item No. 2: To receive a report on the action taken by the Government of India on the various recommendations made by the Coordinating Committee.

According to the constitution of the Coordinating Committee the representatives of Provincial and State Govts. of the Southern region on the Council have to elect a member on the Coordinating Committee. H.M., Education Madras and H.M., Education, Mysore, the only two representatives on the Council had disagreed on the question of nomination on the Coordinating Committee. The suggestion made by Secretary of the Council that the two members might serve on the Coordinating Committee by rotation was also not acceptable to them. The Chairman of the Council had, therefore, invited both the members as special invitees to attend the meeting of the Coordinating Committee, where it

was hoped that the question might be resolved. Neither of them could attend and it was, therefore, decided that the question be deferred pending possible changes in the constitution of the Council as a result of the consideration of the question of establishment of a National Technical University.

Action taken by the Government in respect of other matters was noted.

Item 3: Scheme for the strengthening of Engineering and Technological Institutions.

(a) To receive a note on the progress of the scheme

A question was raised as to why the institutions had not been able to spend the amounts budgeted for the purpose. The Committee was informed that the total amounts of grants proposed to be given were intimated to the institutions only in March 1949 with the result that most of the institutions had kept in suspense the amounts received by them as advance grants in March 1948. The institutions had therefore had about 10 months to spend the amounts received as advance grants in March 1948 and March 1949. The position now was that unless Government was satisfied that the previous grants had been spent, no further amounts could be given.

Members desired that an assurance be given by Government that the unspent amounts in the budget for the year 1949-50 would be made available to the institutions in addition to the amounts provided for in the budget estimates for the year 1950-51, in case the institutions could spend such amounts then. The Chairman informed the Committee that financial stringency would not permit of such an assurance being given but in any case, Government was committed to the total amounts to be given for development and that should be considered an adequate assurance by the institutions.

The Committee expressed itself very strongly on the question of infringement, by the institutions, of

conditions attached to grants and desired that they be informed of the views of the Committee in the matter and further that, if any institution continued to infringe the conditions, the grant should be stopped.

In the matter of revised scales at the College of Engineering and Technology, Jadavpur, the Committee resolved as follows:

> "The revised scales of salaries to teachers shall not be given effect to at the College of Engineering and Technology, Jadavpur, till the approval of the Government of India is obtained. When that is done, proper selection committees should be appointed to scrutinise the qualifications and experience of the present incumbents with a view to fitting them into the revised scales".

Item No.3 (b) To consider the extension of the scheme to cover the capital expenditure for the Department of Textile Technology, Alagappa Chettiar College of Technology.

The Vice-Chancellor of the Madras University had applied for a grant of Rs. 3.5 lakhs for buildings and Rs. 2 lakhs for equipment for the Textile Technology Department of the University. The Vice-Chancellor had further informed that the University proposed to discontinue the arrangements which existed at present viz., of making use of the premises and equipment at the Government Textile Institute. The total cost had been estimated at Rs. 5 lakhs for buildings and Rs. 3 lakhs for equipment of which the University proposed to find Rs. 2.5 lakhs from its own funds.

In the opinion of the Committee, this much outlay would not ensure the establishment of a well-equipped Department of Technology. A visiting Committee consisting of the following was appointed to report to the Coordinating Committee on this question.

Mr. P.N. Joshi, Victoria Jubilee Technical Institute, Bombay.

Dr. H.L.Roy, College of Engineering and Technology, Jadavpur.

Dr. K.Venkataraman, Department of Chemical Technology, Bombay University, Bombay.

Mr. G.K.Chandiramani (Secretary)

Item No.3 (c) To consider proposals regarding Selection Committees for appointment of Staff in non-University institutions.

The Committee approved the panels of experts to be associated with Selection Committees submitted by the Victoria Jubilee Technical Institute, Bombay, for appointments at the Institute.

(A) Civil Engineering

1. Mr. N.S. Gupchup B.Sc., B.E., M.I.E., c/o Messrs Moti Chand & Co., Bombay.
2. Mr. F.M. Surveyor, Executive Engineer, Bombay Port Trust, Bombay.
3. The Chief Engineer, P.W.D., Bombay.
4. The Chief Engineer (Civil), G.I.P. Rly.
5. The Chief Engineer (Civil), B.B. & C.I.Rly.

(B) Mechanical Engineering

1. The Chief Mechanical Engineer, B.B. & C.I. Railway.
2. The Chief Mechanical Engineer, G.I.P.Rly.
3. The Chief Mechanical Engineer, Bombay Port Trust, Bombay.

(C) Electrical Engineering:

1. Mr. P.B. Advani M.Sc. (Tech), Electrical Commissioner to the Government of Bombay.
2. Mr. P.G. Russell, General Manager, Tata Hydro Electric Power Supply Co., Bombay.
3. Mr. S.R. Kantabet B.E., M.I.E.E., Fellow R.I.E., General Manager, Overseas Communications Service, Bombay.
4. The Chief Electrical Engineer, G.I.P. Rly.,
5. The Chief Electrical Engineer, B.B.& C.I.Rly.

(D) Textile Manufacturers:

1. The Chairman, Bombay Millowners Association, Bombay (if not already on the Committee)
2. Mr. S.D. Oke B.Sc., Tech., Manager, Jam Mills Bombay.
3. Mr. B. Raha M.Sc., Tech., Manager, Shafurji Bharucha Mills Ltd., Bombay.
4. Dr. J.F. Perwania Ph.D., Director, Indian Cassablanca Ltd., Bombay.
5. Mr. F.Guthrie, General Manager, Century Mills Ltd., Bombay.

In regard to the College of Engineering and Technology, Jadavpur, the Committee desired certain changes in the proposals made by the institution authorities. The panels as revised by the Committee are as follows:-

(A) Mechanical Engineering

1. Professor of Mechanical Engineering Bengal Engineering College, Sibpore.
2. Deputy Chief Mechanical Engineering E.I. Railway.
3. Mr. Chatternton, Burn & Co., Calcutta.
4. Mr. J.Mookherjee A.M.I.E., Messrs. Guest Keen & Co., Calcutta.

(B) i) Electrical Engineering.

1. Mr. P.K. Bhattacharyya, Chief Electrical Engineer, Electricity Development, Government of West Bengal.
2. Professor of Electrical Engineering, Bengal Engineering College, Sibpore.
3. Mr. N.N.Sen Gupta M.Sc. (Tech), Chief Electrical Inspector, Bengal.
4. Mr. J.W.Church M.I.E., Chief Engineer, Calcutta Electric Supply Corporation Ltd.

ii) Communication Engineering

1. Dr. S.K.Mitra D.Sc., F.N.I., Ghosh Professor of Physics, Calcutta University.
2. General Manager, Telephones, Calcutta District.
3. Professor of Communication Engineering, Bengal Engineering College, Sibpore.

(C) Chemical Engineering Department

1. Dr. Chittaranjan Barat M.S.(Cal) Dr. Ing. (Munich)
2. Dr. G.P. Kane, Department of Chemical Technology, University of Bombay.
3. Dr. Baukloh, Professor of Meeallurgy, Bengal Engineering College, Sibpore.
4. Dr. Weingartner, Professor of Chemical Engineering, Eastern Higher Technical Institute.

The Committee was of the opinion that the selection Committees should ordinarily be composed of four persons. If however it was decided for some reason to have five members on such committees, then two at least should be outside independent experts. The Committee considered it

necessary that the reports of the selection committees should be submitted to Government before the appointments are actually made.

Item No.3 (d) To consider the request of the Annamalai University for waiving of condition regarding its contribution towards the development of Engineering College.

It was decided that a small sub-committee consisting of Mr. J.A. Tarapurevala and the Secretary of the Council should visit the Engineering College of the Annamalai University with a view to ascertaining on spot if the expenditure incurred by the Institute since the last Visiting Committee was there could be considered as an adequate contribution of the University to cover one-third the cost of development from that date. This Committee may report to the Government directly.

Item No. 3 (e) To consider the following issues arising out of conditions governing grants-

(i) Appointment of Visiting Committees or Inspectors for non-University Institutions-

It was decided that small Visiting Committees consisting of two members each may be appointed by the Central Government to visit the College of Engineering and Technology, Jadavpur, and the Victoria Jubilee Technical Institute, Bombay, at an early date and report to the Council whether the grants given had been properly utilised and also whether proper standards of teaching and examination had been maintained.

(ii) Fixation of quota of seats in Institutions

The Committee approved the quotas proposed in Ministry of Education's letter No. F. 1-8/48-T2 dated the 13th June 1949 (Annexure 7). The Committee noted that in certain cases the institutions had not admitted the requisite number of students from outside the province in which they were located. It was resolved that the attention of the institutions should be invited to the deviations and that further reports be obtained from the institutions immediately after the next admissions take place. The institutions should be requested to take all possible steps to ensure the admission of extra-provincial students.

Item No.4: To consider whether recommendations should be made to the Central Government for giving grants to new non-government engineering and technological institutions.

The Committee did not consider it proper to debar any institution from consideration for grants from Government on the ground that it was a new institution. The Committee was of the opinion that it should make recommendations to Government for grants in respect of-

i) institutions which had been established for a fairly long time and required assistance for improvement and strengthening,

ii) new institutions which obtained the approval of the Council before coming into existence.

In order to ensure coordinated development and to see that institutions are started only to meet the requirements of the country, it was resolved that any institution desiring to come into existence should first submit its scheme to the Council and obtain its approval before it can be entitled to consideration for grants from Government.

The Committee desired that wide publicity should be given to this resolution to prevent institutions having very meagre resources at their disposal, from coming into existence.

The Committee examined the cases of the five colleges which had sent their applications for assistance and decided not to recommend any grants.

Item No.5: To consider letter No.4385/5298/CXXI, dated the 29th September 1949 from the Government of the Central Provinces and Berar, requesting for financial assistance for the Government Engineering College, Jubbulpore.

The Committee took note of the fact that, when the Council framed the scheme for the improvement and strengthening of 14 non-Government engineering and technological institutions, Government institutions situated in the provinces were not taken into consideration, as block grants were given by the Central Government to the Provinces for all-round development which included schemes of development of government colleges. In view of the fact that the Central Government did not propose to give development grants to the provinces any further, government

engineering and technological institutions should receive consideration, as otherwise there is the danger of their falling behind the non-government institutions for which grants have already been sanctioned. Each case would, however, be considered on its own merits and the criteria laid down for grants to non-government institutions (Refer item 4) would apply to these institutions also.

Item No.6: To recommend suitable salary scales for instructional staff of Engineering and Technological Institutions.

It was decided to appoint a sub-committee consisting of the following to consider the question in all its aspects and report to the Coordinating Committee by the 31st March 1950.

Dr. Tara Chand (Chairman)

Dr. J.C. Ghosh

Mr. J.A. Taraporevala

G.K.Chandiramani (Secretary)

This sub-committee would report on uniform nomenclature of the various posts in technical institutions also.

Item No. 7: All India Boards of Technical Studies.

(a) To receive a review of the activities of the All India Boards of Technical Studies.

The note on the activities of the All India Boards of Technical Studies was recorded subject to the following.

The recommendation of the All India Board of Technical Studies in Engineering in regard to training in Refrigeration and Air Conditioning was endorsed with slight modification. The Committee expressed the view that the subject may be introduced as an elective in the Mechanical Engineering course and that for the training of operators for maintenance and servicing, Directorate General or Resettlement and Employment and the Provincial Governments should be asked to organise facilities.

The Committee endorsed the views of the All India Boards of Technical Studies in Commerce & Business Administration and Engineering & Metallurgy that it would not be in the best interests of maintaining proper standards of education to permit private candidates to appear for the All India Diploma Examination.

The Committee was of the view that the provision of courses in Agricultural Engineering deserved attention. In this connection it was pointed out that Government had placed orders for agricultural machinery worth about Rs. 4 crores and that there was a proposal to establish a factory for manufacturing such machinery. It was resolved that the matter be referred to the All India Board of Technical Studies in Engineering for consideration and report.

It was noted that the All India Boards had completed the task of framing syllabuses for most of the subjects and the stage had come when some steps should be taken to popularise the courses with a view to their adoption. Some members expressed the view that even if the courses were not adopted in toto, they served a useful purpose as they provided a model for courses which were being framed by the various universities and other academic bodies. It was, however, felt that this was not enough; these courses had some special features namely that they could be availed of on a part-time basis and that students with an interrupted academic career could also take up these courses after passing an entrance test. It was resolved that the attention of Provincial Governments and Universities be drawn to these courses and in particular to the special feature regarding part-time instruction provided therein. Further Governments and Universities should be requested to take tangible action with a view to popularising these courses.

Item No. 7.(b) To consider the following arising out of the activities of the Boards

i) New Schemes of Training in Chemical Engineering and Chemical Technology.

The following points came out as a result of discussion:

1) A number of subject headings in the first year of the syllabus were mostly the same as in Inter-mediate Science. This was likely to lead to a repetition of work already done by students.

2) Thermo-dynamics was taught in the 4th year of the courses which was rather late to start the subject.

3) Other Boards had framed their syllabuses on a basis of 1080 hrs of work per year whereas in this course 860 hrs of work had been provided.

4) Provision should be made for students who had passed the B.Sc. examination to take the course in the second year

stage and thus be able to do it in one year less.

It was agreed that the courses shouldbe split up into two parts, the basic stage and the specialisation stage but that the Board might consider the question in the light of observations made above and examine if it would be possible to complete the course in a period of 3 years after Intermediate Science. It was further decided that pending re-examination of the question by the Board, the existing syllabuses should continue.

The Chairman of the Board was requested to place the question for reconsideration of the Board at its next meeting.

ii) Syllabus for All India Diploma in Architecture (Post-Intermediate Standard) and the consequential changes in the scheme of examinations.

The revised examination scheme for the Intermediate course and the All India Diploma scheme as recommended by the Board were approved.

iii) Revision of the rules for the conduct of Architectural Examinations.

The All India Board of Technical Studies in Architecture and Regional Planning had recommended that, in future examinations, there should be appointed two paper setters and examiners in each subject at the Intermediate examination. It had further recommended that one of these two examiners must be internal. The Committee accepted the recommendations of the Board and directed that consequential changes be made in the rules for the conduct of examinations. The Committee reiterated the view that for the final examination, both the examiners should be external.

The Committee also accepted the recommendation that the testimonies of candidates should be marked as a whole and not subject-wise. The draft rule to replace the existing rule 9 and 10 was accepted. This reads as follows:

"The minimum for a pass in testimonies and school work shall be taken as 50% of the aggregate in all subjects put together. Distinction in any subject shall be awarded only on the basis of the performance of the candidates

in the corresponding written papers".

(iv) Revision of the scheme of All India Diploma Examinations.

The Committee accepted the view of Dr. Ghosh and decided that the existing arrangements should continue.

It was noted that for the supplementary examinations in Engineering, the Chairman of the Council had issued instructions for a different system to be adopted pending consideration of the question by the Coordinating Committee. The Committee directed that for the examinations to be held in April and thereafter, the existing rules should be made applicable.

(v) Revision of scales of remunerations for examiners and moderators.

In view of the Coordinating Committee's decision on items 7b(iii) & (iv), the following changes only in the scale of remuneration were considered necessary and the Committee decided to recommend to Government the adoption of the revised scales.

Intermediate Examination Architecture

For setting a paper- Rs. 60 to be shared between two examiners

For marking answer scripts - Rs. 1/8/- per examiner per script.

The scale of remuneration recommended by the All India Board of Technical Studies in Engineering & Metallurgy for examination of laboratory journals was accepted by the Committee. It was decided that each examiner be paid Rs. 1/- per candidate for examining the journals in-

(1) Strength of Materials, and

(2) Hydraulics and Hydraulic Machinery.

(vi) Training of C.P.W.D. employees on part-time basis.

The Committee accepted the recommendations of the All India Boards of Technical Studies in-

(1) Architecture & Regional Planning,

and (2) Engineering and Metallurgy

regarding the representation of C.P.W.D. employees for taking the All India Diploma examinations, with the proviso that the normal rules in regard to part-time studies would apply to the

C. P.W.D. men also.

Item No.8: To consider suitable abbreviations for All India Diplomas and Certificates.

It was decided that only the diploma holders should be permitted to use an abbreviation in recognition of the conferment. The abbreviation to be used would be for the words 'National Diploma' i.e., N.D. with the branch of engineering or technology indicated within brackets. For examrle the holders of All India Diploma in Engineering could attach N.D.(Engg) to signify their attainment.

Item No.9: To consider a representation regarding recognition of the Diploma of Government Textile Institute, Kanpur.

The Committee noted with satisfaction that the U.P. Government were taking necessary steps to bring the courses of the Government Central Textile Institute, Kanpur, in line with those of the Council and decided that it would consider the question of according recognition of the diplomas of this institute after this was done.

Item No. 10: To consider a report on the activities of the Joint Committee of All India Council for Technical Education and Inter-University Board.

It was reported that the second meeting of this Committee which was scheduled to be held on the 30th and 31st December 1949 had to be postponed as several members found the dates inconvenient. The Convener of the committee had decided to hold the meeting on the 20th and 21st February 1950. The final report would, therefore, be made available to the Coordinating Committee at its next meeting.

Item No. 11: To consider the question of training in Industrial Safety Engineering.

The Coordinating Committee decided to refer the matter to the All India Board of Technical Studies in Engineering & Metallurgy and the All India Board of Technical Studies in Chemical Engineering & Chemical Technology, for further examination and report.

Item No. 12: To nominate a representative of the All India Council for Technical Education on the Standing Advisory Committee of the Department of Power Engineering, Indian Institute of

of Science, Bangalore.

It was decided that Mr. A.N. Khosla should represent the Council on the Standing Advisory Committee of the Department of Power Engineering, Indian Institute of Science, in ralce of Major D.L. Desh ande who had ceased to be a member of the Council.

Item No. 13: To consider a letter from Mr. B.B. Joshi, a member of the All India Council for Technical Education, regarding 'Training within Industry in India'.

In the draft Industries Bill which had been introduced in the Parliament at its last session, a provision had been made making it incumbent on certain specific industries to provide training facilities. It was necessary that, while this bill was being considered, a well thought-out scheme should be worked out for enforcing this provision. The Committee decided that a sub-committee consisting of the following should consider the question and frame a concrete scheme.

Dr. J.C. Ghosh (Convener)

Prof. M.P. Gandhi

Mr. B.B. Joshi

Miss Maniben Kara

Mr. J.A. Tararorevala

Representative of the Ministry of Labour

Mr. G.K.Chandiramani (Secretary)

Item No.14: Miscellaneous:

(a) To report the following new appointments-

i) For the Governing Body of the College of Engineering and Technology, Jadavpur-

Dr. S.R. Sen Gupta, Principal, Bengal Engineering College, Howrah.

Mr. P.N. Sinha of Birla Bros Ltd., Calcutta

ii). For the Governing Body of the Victoria Jubilee Technical Institute, Bombay-

Dr. Mata Prasad, Principal, Royal Institute of Science, Bombay

Mr. C.M. Master, Architect, Bombay.

iii) For the All India Boards of Technical Studies in Engg. and Metallurgy, Chemical Engg. and Chemical Technology and Architecture and Regional Planning-

Dr. S.R. Sen Gupta, Principal, Bengal Engineering College, Howrah (as additional member).

The information was recorded.

Item No. 15: Any other business:

(a) (i) To approve the scheme of Examination for the All India Diploma in Electrical Engineering framed in accordance with new syllabus.

The scheme proposed by the Board was adopted and it was decided that the omission of the subject 'Heat Engines' in the final examination should be brought to the notice of the Board.

(a) (ii) To consider the functions of the Regional Committees vis-a-vis All India Boards of Technical Studies in respect of Examinations.

It was decided that the existing arrangements whereby the Boards performed the functions relating to examinations shall continue and the question of allotting it to Regional Committees be considered after the report of the National Technical University Sub-committee was available.

(iii) To appoint representatives of the All India Council for Technical Education on All India Boards of Technical Studies.

The Committee recommended the following as Council's representatives on the Boards where vacancies existed.

Commerce Board

Prof. M.P. Gandhi

Textile Board

Dr. J.N. Ray

Architecture Board

Mr. Rathindranath Tagore

(iv) Consideration of recognition of Chemical Engineering Degree of College of Engineering and Technology, Jadavpur.

The Committee endorsed the recommendation of the All India Board in Chemical Engineering & Chemical Technology which reads as follows:

" The Degree course in Chemical Engineering of the College of Engineering and Technology in Jadavpur be considered as equivalent to degree in the same subjects awarded by Universities for purposes of admitting such candidates to post-graduate courses and for research work in Indian Universities and Research Institutions. This

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recommendation is however, subject to the inclusion of practical examinations in Chemical Engineering and Technical Analysis and also provision of adequate credit for the general performance of the students throughout their courses of study."

The Committee further desired that the views of the Council may be communicated to the Inter- University Board.

(v) Consideration of the desirability or otherwise of the award of the All India Diploma of the All India Council for Technical Education to the candidates who passed the All India Senior Diploma Examination in (i) Engineering (ii) Commerce and (iii) Chemical Engineering and Chemical Technology conducted by the Association of Principals of Technical Institutions (India).

The Committee decided to recognise the diplomas awarded by the Boards of Technical Studies working under the aegis of the Association of Principals of Technical Institutions prior to their being taken over by the Council and further recommended to Government that the recognition given by it to the Council's diplomas for entry into Central Services may be extended to the A.P.T.I. diplomas also.

(vi) To report the decision of the Commerce Board regarding part-time courses for the All India Diploma in Commerce.

The Committee approved the recommendation of the All India Board of Technical Studies in Commerce & Business Administration that the duration of the part-time attendance for the holders of the All India Certificate in order to qualify for appearing at the All India Diploma examination may be reduced from 4 years to 3.

b (i) To approve the appointment of Sri S.M. Sen as an Assistant Professor in the Electrical Engineering Department of the College of Engineering and Technology, Jadavpur.

The Committee directed the Secretary to inform the institution in terms of the decision taken by it on item No. 3(a) (regarding appointment of Mr. M.L.Jain) and to stress the necessity of complying with the conditions governing grants to the institution.

(ii) Training of Engineers in Malariology.

The Committee decided to refer the question to the All India Board of Technical Studies in Engineering and Metallurgy

(137) 233

for opinion.

The Council at its meeting held in Bombay in 1948 passed a resolution that the meeting of the Coordinating Committee which considered the agenda of the Council should take place about a month in advance of the meeting of the Council. This had been suggested to enable the members of the Council to have sufficient time to go through the recommendations of the Coordinating Committee. As such a procedure involves attendance of members of the Coordinating Committee at two meetings held within the space of a month or less, which most of the members found inconvenient, it was decided that the reports of the various sub-committees of the Coordinating Committee on important matters may be circulated to the Council members will in advance and that there should be a gap of one full day between the

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meeting of the Coordinating Committee and that of the Council. The recommendations of the Coordinating Committee should be circulated to the members of the Council on this day. It was further decided that the meeting of the Council may taken place in April as usual.

The meeting terminated with a vote of thanks to the Chair.

Education & Pub.Health Deptt.(C1)

Co-ordinating Committee of the All India Council for Technical Education-Representation.

Ref: From the Govt.of India No.F.1-11/49-T.2 d-20-12-49

Attention is invited to the notes on pp 23-25 of letter No.71436-C1/49-1 Education, d-15-9-1949. The Secretary of the All India Council for Technical Education now states that consequent on the lack of agreement on the question of representation on the Co-ordinating Committee on behalf of the Provinces and States of the Southern Region, the Chairman has instructed him to extend invitations to both the representatives of the Southern Region to attend the forthcoming meeting of the Co-ordinating committee to be held at Calcutta on the 12th January, 1950, as a special invitees, when he proposes to settle the question at the meeting itself. H.M.(E & L) has minuted " I doubt very much whether I could go as I have the Budget Standing Finance Committee meeting. Can we not depute the D.P.I. or Joint Director of Industries and Commerce."

The constitution of the Co-ordination committee is on page 3 of the papers at (N). There is no provision for the deputation of the D.P.I. in the place of H.M.

For orders.

28/12/49 S

we may suggest, if in the circumstances, the Joint officers mentioned can be deputed

H.M.(E & L)

SECRETARY, EDN. AND R.H. DEPT. 4 JAN 1950 GOVERNMENT OF MADRAS

A draft letter is submitted

4/1/50 S

S/1466/49

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[Issued as letter No. 101466-C1/49-1 Edn., Dated 4-1-1950]

From the Govt. of India, Telegram dated 9-1-1950-

The Government of India have no objection to the deputation of another Officer in place of H.M.(Edn) to attend the meetings of the Co-ordinating Committee of the All India Council for Technical Education at Calcutta on the 12th January. In his minute on page 1 c.f. H.M.(Edn) suggested that either the Director of Public Instruction or the Director of Industries and Commerce might be deputed. The Director of Public Instruction is already at Cuttack in connection with the meeting of the Central Advisory Board of Education at Cuttack on the 8th, 9th and 10th January 1950. He proposes to leave Cuttack on the 11th. Perhaps he might be asked to attend the meeting of the Co-ordinating Committee of the All India Council for Technical education at Calcutta on the 12th. A draft Telegram ~~H.M.~~ is submitted. As H.M.(Edn) is on tour there is no time to consult him and get his approval. The telegram might issue and the file might be circulated to H.M. after he returns from tour.

Sp 10/1/50.

DM 10/1/50 S | 10/1 | H.M (Edn) (a.c.)

[Issued as Telegram Dated. 10.1.50]

p 2 11 cf

The telegram to the D.P.I has been issued.

The Secretary All India Council for Technical Education may be informed that the D.P.I Madras will be deputing for the H.M (Edn).

A draft letter is submitted. It may be sent by Air Mail to-day.

Sp 11/1/50.

DM 10/1/50 S 11/1

SECRETARIAL, EDN. AND R.H. DEPT. 11 JAN 1950 GOVERNMENT OF MADRAS

3 (39)

(Last Pg (37))

p 2 12 cf
p 2 13 cf
p 2 14 cf
p 2 13 cf

[Issued as letter No 101466-C1/49-2 Edn dt 10-1-50].

From the D.P.I. No. 75 C1/50 dated 16-1-50.

From the Govt of India No. F. 1-11/49-T. 2 dated 20.1.50

The D.P.I reports that he could not attend the meeting of the Coordinating committee of the All-India Council for Technical Education held at Calcutta on 12-1-50 as the telegram directing him to attend that meeting was received by him at Madras on 12.1.50 after being re-directed from cuttack

KB. 20.1.50

The proceedings of the meeting may be awaited. The Secretary of the All India Council for Technical education also reports that the D.P.I did not attend the meetings of the Coordinating committee at Calcutta

DM 24/1/50 S

How did the delay occur in sending the telegram

24/1

Submitted that the telegram from the Govt of India authorising H.M.(Edn) to depute his nominee to attend the Coordinating Committee meeting at Calcutta was received in office in the forenoon of the 10th January. Immediately a telegram to the D.P.I Vizag was drafted and the file was sent to the residence of the Secretary as he did not attend office that day. The file ~~was sent~~ with the draft approved was received back in office at 2.45 PM and the telegram was despatched at 3 PM the same day — 10th January. It will be seen that there has been no delay in the office.

Sp 28/1/50

DM 28/1/50 S 31/1

p 2 11 cf
Draft
p 2 11 cf

4

The proceedings of the meeting of the Coordinating Committee of the All India Council for Technical education has not been received so far. A copy may be called for.
A draft letter is submitted

KB 19/4/50

DO M 20/4/50

cpy 101466/49 D. Edn

Issued as Letter No 101466-D-49-8. Edn dt 20.4.50
From the Govt of India Ministry of Education No F.1.1./50.T.2 dt 3.5.50.

pp 215 ct

pp 216 ct

pp 217–234 ct

Please see a copy of the Proceedings of Eighth meeting of the Co-ordinating Committee of the All India Council for Technical Education held on 12.1.50.
Attention is invited to the items No ~~3(a)~~ 2, 3 (b) & 3 D of the Agenda of the meeting on pp 218-219, 220 & 223. No action is however called for.

No 10/5

May be circulated to H.M.(E&L) & H.M.(P.W.) for perusal.

Hospitals chiefly Equipment Recruitment

OP 6/5/50.

DM 6/5/50 ~~H.M.~~ WMS 9.5.50.

S B 10.5.50.

Also shown in 7 Section regn. up K on p 220 ct & B on p 3 ct

An extract of B may be taken & added to the page of 7.

DONE 4/5/50 168 To F Section

WMS 9.5.50.

H.M.(E.&L.) 4/5

WMS 10-5 H.M.(P.W.)

No further action is necessary in this file. The papers may be c/o No 1554 Edn dated 19-5-50
MS

Recorded

OP 17/5/50.

Hon 18/5/50

Subject
Technical Education-Co-ordinating committee of the All India Council for Technical Edn. 8th meeting
Papers recorded

SECRETARY 17 MAY 1950 EDUCATION DEPARTMENT

1+0