



मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद
इलाहाबाद-211004 (भारत)
Motilal Nehru National Institute of Technology Allahabad
Allahabad-211004 (India)
Websit : <http://www.mnnit.ac.in>

Minutes of the Thirty Seventh (37th) meeting of the Senate held on 26.08.2011 (Friday) at 3.30 p.m. in the Conference Room of the Institute.

Following members of the Senate attended the meeting :

- | | | |
|---------------------------------|---|-----------------------|
| 1. Prof. P. Chakrabarti | - | Director / Chairman |
| 2. Prof. S.K. Agarwal | - | Member |
| 3. Prof. Satya Sheel | - | Member |
| 4. Prof. V.K. Nema | - | Member |
| 5. Prof. R.K. Srivastava, CED | - | Member |
| 6. Prof. P.R. Agarwal | - | Member |
| 7. Prof. S.C. Prasad | - | Member |
| 8. Prof. Sudarshan Tiwari | - | Member |
| 9. Prof. Nirjhar Roy | - | Member |
| 10. Prof. S.K. Duggal | - | Member |
| 11. Prof. Peetam Singh | - | Member |
| 12. Prof. Rajeev Tripathi | - | Member |
| 13. Prof. M.M. Gore | - | Member |
| 14. Prof. K.K. Shukla | - | Member |
| 15. Prof. Anuj Jain | - | Member |
| 16. Prof. N.D. Pandey | - | Member |
| 17. Prof. Geetika | - | Member |
| 18. Prof. R.P. Tiwari | - | Member |
| 19. Prof. R.K. Singh | - | Member |
| 20. Prof. H.N. Kar | - | Member |
| 21. Prof. Vinod Yadav | - | Member |
| 22. Prof. P. K. Dutta | - | Member |
| 23. Prof. P.P. Sahay | - | Member |
| 24. Prof. A.K. Singh | - | Member |
| 25. Prof. R.D. Gupta | - | Member |
| 26. Prof. A.D. Bhatt | - | Member |
| 27. Prof. Sanjay Chaubey | - | Member |
| 28. Prof. Mahendra Kumar | - | Member |
| 29. Prof. Ramesh Kumar Tripathi | - | Member |
| 30. Prof. R. C. Vaishya | - | Member |
| 31. Prof. R.S. Yadav | - | Member |
| 32. Prof. V.K. Srivastava | - | Member |
| 33. Prof. R.P. Singh | - | Member |
| 34. Shri Sarvesh K. Tiwari | - | Registrar / Secretary |

[Signature]

The Chairman, Senate extended warm welcome to the members and thanked them for taking their time out to attend the meeting.

Agenda wise proceedings are as follows :

Item No. 37.01 : To confirm the minutes of the Thirty Sixth (36th) meeting of the Senate held on 13.06.2011.

Resolution : The Senate confirmed the minutes of its Thirty Sixth (36th) meeting held on 13.06.2011, as circulated.

Item No. 37.02 : To consider the action taken on the decisions taken in the 36th meeting of the Senate held on 13.06.2011.

Resolution : The Senate noted the action taken on the resolutions passed by the Senate in its 36th meeting held on 13.06.2011, as circulated.

Item No. 37.03 : To consider the recommendations of the Committee constituted to suggest alternatives of the Summer Semester.

Resolution : The Senate considered the recommendations of the Committee constituted to suggest alternatives of the Summer Semester; and accepted the same with some modifications. Accordingly, it was resolved that the Summer Semester will be replaced by the Supplementary Examination.

The modalities for the implementation of Supplementary Examination will be as follows :

- (i) In place of Summer Semester there will be a Supplementary Examination. This will be for the students, who have secured E and F grades or have ACD in the subject(s). This will be held every year during the last week of June to the first week of July. **For this examination, no regular teaching classes will be held.**
- (ii) Only those students who had attended the classes for these courses during the regular semester will be eligible to appear in the Supplementary Examination.
- (iii) A student can appear for maximum three courses every year for the Supplementary Examination.
- (iv) The weightages of different components for the computation of grades of the courses, for which the student appear in the Supplementary Examination, will be as follows :

(a) For courses with practical components :

S.No.	Component	Weightage	Remark
1	Theory (Supplementary Examination)	70%	Supplementary Examination
2	Practical (Supplementary Examination)	10%	Supplementary Examination
3	Theory (Teacher's Assessment, Carried forward)	10%	Carried forward from the regular semester
4	Practical (Teacher's Assessment, Carried forward)	10%	Carried forward from the regular semester

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(b) For subjects without practical components

S.No.	Component	Weightage	Remark
1	Theory (Supplementary Examination)	80%	Supplementary Examination
2	Theory (Teacher's Assessment, Carried forward)	20%	Carried forward from the regular semester

(v) The records of the semester performance of the students will be retained by the concerned department for the above purpose.

The provisions of the Supplementary Examination will be effective from the session 2012-13. Further, the existing students may also be given an option to appear in Supplementary Examination in place of Summer Semester.

Item No. 37.04 : To consider the proposal from the departments of Applied Mechanics and Mechanical Engineering for creation of new departments of Biotechnology and Chemical Engineering respectively.

Resolution : The Senate considered the proposal from the departments of Applied Mechanics and Mechanical Engineering for creation of new departments of Biotechnology and Chemical Engineering respectively and recommended to the Board of Governors for the creation of the Department of Bio-technology and the Department of Chemical Engineering. Proposals submitted for creation of these departments are enclosed as Annexure-I.

Item No. 37.05 : To consider the constitution of Committee for review of U G Ordinances and P G Manual.

Resolution : The Senate considered the proposal for the constitution of Committee for review of U G ordinances and P G Manual, and resolved to constitute the following committees.

(A) For U G Ordinances :

- | | | |
|--------|--|--------------------|
| (i) | Dean (Academic) | - Chairman |
| (ii) | Prof. P.R. Agrawal, Head, SMS | - Member |
| (iii) | Prof. Rajeev Tripathi, Head, ECED | - Member |
| (iv) | Prof. K.K. Shukla, Head, AMD | - Member |
| (v) | Prof. N.D. Pandey, Head, Deptt. of Chemistry | - Member |
| (vi) | Prof. R.K. Tripathi, EED | - Member |
| (vii) | Chairman SUGC | - Member |
| (viii) | Dy. Registrar (Academic) | - Member Secretary |

P. R. Agrawal

(B) For P G Manual

- | | |
|--|--------------------|
| (i) Dean (Academic) | - Chairman |
| (ii) Prof. P.R. Agrawal, Head, SMS | - Member |
| (iii) Prof. Rajeev Tripathi, Head, ECED | - Member |
| (iv) Prof. K.K. Shukla, Head, AMD | - Member |
| (v) Prof. N.D. Pandey, Head, Deptt. of Chemistry | - Member |
| (vi) Prof. R.K. Tripathi, EED | - Member |
| (vii) Chairman SPGC | - Member |
| (viii) Dy. Registrar (Academic) | - Member Secretary |

Item No. 37.06 : To consider the development of a uniform course structure / framework across all the departments of the Institute and accordingly revision of UG/P G curriculum of all courses.

Resolution : The Senate considered the proposal for the constitution of committee for development of a uniform course structure / framework across all the departments of the Institute and accordingly revision of U G/P G curriculum of all courses and resolved to constitute the following committee for the development of uniform course structure / frame work for all the departments of the Institute :

- | | |
|-----------------------------------|------------|
| (i) Dean (P & D) | - Chairman |
| (ii) Prof. Sudarshan Tiwari, ECED | - Member |
| (iii) Dean (Academic) | - Member |
| (iv) Head, EED | - Member |
| (v) Head, AMD | - Member |
| (vi) Head, SMS | - Member |

Item No. 37.07 : To consider the merger of GIS Cell.

Resolution : The Senate considered the proposal for the merger of GIS Cell as per the decision taken in the meeting of Heads and Deans, held on 09.08.2011; and after detailed deliberations resolved that the merger of GIS Cell with any department, may be deferred. It was also resolved that the GIS Cell may be restructured immediately.

Item No. 37.08 : To consider the establishment of Examination Cell and Admission Cell.

Resolution : The Senate considered the proposal for the establishment of Examination Cell and Admission Cell under the control of Dean (Academic) and approved the same.



Item No. 37.09 : To consider the constitution of Committee for the revision of B.Tech. 1st year Course Curriculum.

Resolution : The Senate considered the proposal for the constitution of committee for the revision of B.Tech. 1st year course curriculum; and resolved to constitute the following committee for the revision of B.Tech. 1st year course curriculum :

- | | | |
|-------|---|------------|
| (i) | Dean (P & D) | - Chairman |
| (ii) | Dean (Academic) | - Member |
| (iii) | Prof. M.M. Gore, Head, CSED | - Member |
| (iv) | Prof N.D. Pandey, Head, Deptt. of Chemistry | - Member |
| (v) | Chairman, SUGC | - Member |
| (vi) | Dr. Naresh Kumar, Deptt. of Physics | - Member |

Item No. 37.10 : To note and ratify the approvals accorded by the Chairman, Senate on following matters :

- (i) Change of limit of CPI from 8.0 or above to 7.5 or above as eligibility for change of branch after IInd Semester as decided in the meeting of Heads and Deans held on 09.08.2011.
- (ii) Recommendations of Ph.D. Oral Boards of different departments.
- (iii) Recommendations of Senate Sub-committee on urgent academic matters.
- (iv) Approval on mercy appeal of Mr. Avanish Kumar (Reg. No. 20043016) for extension of one year beyond the period of seven years to complete B.Tech. course.

Resolution :

- (i) The Senate noted and ratified the approval accorded by the Chairman, Senate, for the change of limit of CPI from 8.0 or above to 7.5 or above as eligibility for change of branch after IInd Semester as decided in the meeting of Heads and Deans held on 09.08.2011.
- (ii) The Senate noted and ratified the approval accorded by the Chairman, Senate on recommendations of Ph.D. Oral Boards of following students of different departments :

Sl.No.	Name of Student	Registration No.	Department
1.	Mr. Dinesh Bhatia	2006RAM02	Applied Mechanics
2.	Mr. Praveen Kumar Agarwal	2004RME01	Mechanical Engineering
3.	Mr. Pise Uday Vithalrao	2006RME08	Mechanical Engineering
4.	Ms. Ruchi Shukla	2006RCS06	Computer Science and Engineering
5.	Mr. Jayendra Kumar Rai	2006REE06	Electrical Engineering
6.	Ms. Richa Bhargava	2008RPH01	Physics
7.	Ms. Nidhi Vyas	2007RJP01	Physics
8.	Mr. Rajesh Verma	2005REL02	Electronics Engineering and Communication
9.	Ms. Pratibha Joshi	2007RMA01	Mathematics
10.	Mr. Pankaj Kumar Sharma	2007REL06	Electronics Engineering and Communication

- (iii) The Senate noted and ratified the approval accorded by the Chairman, Senate on the recommendations of Senate Sub-committee on urgent academic matters.
- (iv) The Senate noted and ratified the approval of the Chairman, Senate on the mercy appeal of Mr. Avanish Kumar (Reg. No. 20043016) for extension of one year beyond the period of seven years to complete B.Tech. course.

Item No. 37.11 : Any other matter with the permission of the Chair.

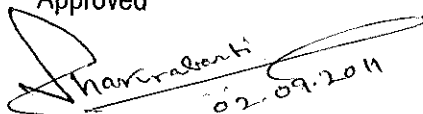
Resolution : With the permission of the Chairman, Senate, the Senate considered the following matters :


- (i) The Senate considered the request of following Ph.D. Part-time students, who have completed six years, for grant of extension of one year for completion of their Ph.D. programme, alongwith the recommendations of their supervisors; and resolved to grant them extension of one year to the complete their Ph.D. programme :

Sl.No.	Name of Student	Registration No.	Department
1.	Mr. Audhesh Narayan	2005RME01	Mechanical Engineering
2.	Mr. Raghav Yadav	2005RCS02	Computer Science and Engineering
3.	Mr. Ravi Shankar Pandey	2005RCS03	Computer Science and Engineering
4.	Mr. Vidya Kant Dwivedi	2005REC03	Electronics and Communications Engineering
5.	Mr. Surya Prakash Singh	2005REE01	Electrical Engineering

- (ii) The Senate considered the mercy appeal of students of sixth semester of B.Tech (Computer Science and Engineering), who have got X-grades in the audit course, **Communication Skills Workshop** alongwith observations of Head/DUGC of Department of Humanities and Social Sciences; and resolved to turn down their mercy appeal.
- (iii) The Senate considered the mercy appeal of Mr. Umesh Pratap Singh (2008RPH04), a part-time Ph.D. student of the Department of Physics, whose mercy appeal was turned down by the Senate in 36th meeting; and noted that recommendations of DPGC of the department is not proper in his case. Therefore, the Senate resolved to refer this case back to the department for submitting its clear recommendations in accordance with norms applicable. The departmental recommendations will be putup in the next meeting of the Senate.
- (iv) The Senate considered the proposal of Dean (Academic) for arrangement of extra classes for those students who have registered late; and accepted the same.

The meeting concluded with the vote of thanks to the Chair.

Approved

(P. Chakrabarti)
Director/Chairman


02/09/11
(Sarvesh K. Tiwari)
Registrar/ Secretary

No. 1081 / AMD) 2011 / F106 ANNEXURE No. I

DEPARTMENT OF APPLIED MECHANICS

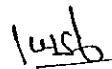
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M.N.I.T., Allah.

MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY

24-8-11

Registrar

With reference to your letter regarding submission of proposal for establishing separate Department of Biotechnology which presently is being run under the Department of Applied Mechanics, please find the detailed implementation proposal for further necessary action at your end.


(K.K. Shukla) 24/8/11
Head

PROPOSAL FOR DEPARTMENT OF BIOTECHNOLOGY

Biotechnology at MNNIT Allahabad was founded as a new academic unit under Applied Mechanics in 2006, with the objective of integrating life sciences with engineering and to develop cutting-edge technology through research, training and technical innovation. Presently, B. Tech, M. Tech (Biotechnology) and PhD program is being run under Biotechnology with the involvement of six faculty members. As per B. Tech and M. Tech. curriculum, the following laboratory oriented courses are being run in the department:

B. Tech Programme:

Biochemistry, Biophysics and Structural Biology, Genetic Engineering, Microbiology, Instrumentation, Genetics, Plant Biotechnology, Bioinformatics, Enzymology, Animal Biotechnology, Microbial Technology, Biochemical Engineering,

M. Tech Programme:

Recombinant DNA Technology, Molecular Biology, Applied Microbiology, Biochemical Engineering, Immunotechnology, Advanced Bioinformatics.

In addition, one year project work for B. Tech and Thesis for M. Tech programme is also mandatory for students.

The space allocated to biotechnology is not sufficient and lacking well equipped laboratories which are a critical factor for the development of biotechnology. Presently, only two laboratories are fostering the needs of all the courses and research. Also, there are no specialized PG/research laboratories which are indispensable for the growth of this research oriented subject.

Since, biotechnology is in its initial stages of development, it is aimed to have following developmental and implementation proposal under various heads for creation and development of new Biotechnology department in MNNIT.

1. Space:

Requirement of Floor Area

a. Laboratories

S. No.	Name of the Laboratory	Floor Area (sq.m)
1.	UG Laboratory -1 (Microbiology, Microbial Technology , Food and Environmental Biotechnology)	120.00
2.	UG Laboratory -2 (Biochemistry, Enzymology, Biochemical Engineering, Bioprocess and Plant Design)	120.00
3.	UG Laboratory -3 Plant and Animal Biotechnology	120.00
4.	UG Laboratory -4 (Molecular Biology, Genetics, Genetic Engineering and Immunology)	120.00
5.	Central instrumentation lab	200.00
6.	PG Laboratory-1	96.00
7.	PG Laboratory-2	96.00
	Total area.	872.00

b. Research Laboratory as per thrust areas:

The department has identified the following priority areas under the broad area i.e Health and Environmental bioprospecting:

- A Agriculture biotechnology
- B Bioinformatics
- C Bioremediation and product development
- D Biochemical Engineering
- E Molecular biology, diagnostics and DNA methylation

- F A Drug design & delivery systems, biofilms
 G c Microbiology, Microbial diversity and plant microbe Interactions

Accordingly, following research laboratories will be required:

S. No.	Name of the Laboratory	Floor Area (sq.m)
1.	Research Laboratory-1 (Sub area C&D)	125.00
2.	Research Laboratory-2 (Sub area: E&A)	125.00
3.	Research Laboratory-3 (Sub area: A,G & C)	125.00
4.	Research Laboratory-4 (Sub area: E, G & F)	125.00
5.	Research Laboratory-5 (Sub area: B)	125.00
	Total area	625.00

c. Additional Requirements:

In addition to the teaching and research laboratories, following additional space is also essential for conducting other academic, research and administrative activities:

S. No.	Name	Number	Floor Area (sq.m)
1.	Faculty Rooms	15	540.00
2	Room for Head of Department	01	50.00
3	Office	01	54.00
4	Departmental Seminar Room	01	225.00
5	Conference/Meeting Room	01	90.00
6	Departmental Library	01	60.00
7	Store	01	100.00

8	Toilets	06	90.00
9	Research Scholar Room	01	40.00
10	Koji room	01	36.00
11	Sample Preparation Room	01	36.00
12	Animal House	01	40.00
13	Green House	01	60.00
14	Poly House/Glass House with mist chamber	01	80.00
14	Experimental Field area	01	1000.00
15	Radio isotopes room	01	20.00
16	Washroom for Experimental work	01	40.00
	Total Area		2525.00

d. Available area under various heads:

Presently, all the teaching (practical), research and other activities are being executed from the newly allotted space which is mentioned under the following heads:

S. No.	Name of the Laboratory	Floor Area (sq.m)
1.	Research Laboratory-1	110.00
2.	Research Laboratory-2	40.00
3.	Seminar room	47.00
4.	Faculty Rooms (8)	135.00
5.	Toilet (01)	15.00
	Total area	347.00

Total floor area (a+b+c) = 3022.00sq. m

Experimental field area = 1000.00sq.m

Available area = 347.00 sq.m.

The department aims to establish advanced research laboratories in all the identified areas. Apart from fundamental research, the goals of the department are also targeted to meet the demands of the biotechnology based industries. In this context, the department has identified certain areas aimed at departmental growth and in this context various equipments shall be required for carrying out the proper teaching and research activities in the department of Biotechnology.

Thrust Areas

- Health and Environmental Bioprospecting

Subareas of Research

- A. Agriculture biotechnology
- B. Bioinformatics
- C. Bioremediation and product development
- D. Biochemical Engineering
- E. Molecular Biology, Diagnostics and DNA methylation
- F. Drug design & delivery systems, biofilms
- G. Microbiology, microbial diversity and plant microbe Interactions

At present, Biotechnology is having following equipments catering to the needs of teaching and research.

List of Available Equipments

S. No.	Name of Equipment	Quantity
1.	Anaerobic gas system (1.5 L)	01
2.	Autoclave	04
3.	Weighing Balance (Non-digital)	01

4.	BOD Incubator	01 (EFP)
5.	CDC biofilm device	01
6.	Centrifuge	04
7.	Colorimeter	01
8.	Deep freezer (-20 C)	02
9.	Deep Freezer (-80 C)	01
10.	Digestion unit for 6 test	01
11.	Digital COD	01
12.	Digital colony counter	01
13.	DO Meter model with probe	01
14.	Double distillation unit	03
15.	Electronic balance	05
16. G	PCR Machine	02
17.	Haemocytometer	01
18.	Homogenizer	01
19.	Agarose gel electrophoresis unit with power pack	06
20.	Incubator	05
21.	Laminar air flow	05
22.	Magnetic stirrer	02
23.	Magnetic stirrer with hot plate	01
24.	Micropipette	13
25.	Micropipette Autoclavable	02
26.	Microscope	10

27.	Microwave Oven	01
28.	Orbital shaker incubator	02
29.	Hot air Oven	04
30.	Ph Meter	04
31.	Plant growth chamber	01
32.	Plate Master	01
33.	Refrigerator	06
34.	Serological Water Bath	01
35.	Southern blotting Apparatus	01
36.	Spin Win Micro Centrifuge	01
37.	T L C Kit	01
38.	Tissue Culture Rack	01
39.	Transilluminator	02
40.	Ultrasonic Cleaner	01
41.	UV Visible Spectrophotometer	02
42.	Vaccume pump	01
43.	Vortex Mixture	01
44.	Water Bath	02
45.	Western Bolt Unit	01
46.	Ultra Membrane Filtration Unit	01
47.	Fluorescent Microscope with accessories	01
48.	CO2 incubator	01
49.	Biosafety cabinet	01
50.	Elisa Reader	01

51.	Gel Documentation system	01
52.	Water purification system (Ultrapure)	01

List of Equipments (under purchase)

S.No.	Name of Equipment	Quantity
1.	Soxhlet Apparatus	01
2.	Differential Scanning Calorimeter/DSC	01
3.	Low-pressure chromatography columns with accessories	01
4.	Rotary Evaporator	01
5.	Fermentor	01
6.	COD Reactor/digestor	01
7.	Peristaltic pump (for biological purpose)	01
8.	Air Compressor	01
9.	Isothermal continous stirred tank reactor (CSTR)	01
10.	Furnace	01
11.	Isothermal Plug Flow Reactor	01
12.	Alcohol distillation unit	01
13.	Digital air flow meter	01
14.	Peristaltic pump (Bioreactor)	01
15.	Knife Mill Grinder	01
16.	HPLC	01

To sustain this progress further, additional equipments shall be required for establishing new facilities and strengthening the existing facilities.

S.No	Name of the Equipment	Estimated Cost
1	2D Gel electrophoresis System	5,00,000/-
2	AKTA Prime Chromatography	15,00,000/-
3	Atomic Absorption Spectroscope	15,00,000/-
5	Automated DNA Sequencer	35,00,000/-

6	Bioinformatics Software	30,00,000/-
7	Biolog System	40,00,000/-
8	Chromatography Chamber	2,00,000/-
9	Deep freezer -80 C (1)	8,00,000/-
10	Denaturant Gradient Gel Electrophoresis	14,00,000/-
11	Electroporator	5,00,000/-
12	Fermentor (7L)	25,00,000/-
13	Florescence Spectroscope	8,00,000/-
14	Fluorimeter	10,00,000/-
15	Fraction Collector	4,00,000/-
16	Gas Chromatography Mass Spectroscopy	40,00,000/-
17	High Speed Ultra Centrifuge	12,00,000/-
18	Inverted Microscope	8,00,000/-
19	Nanodrop Spectrophotometer	5,00,000/-
20	Particle Size Analyser	10,00,000/-
21	Protein Sequencer	40,00,000/-
22	Real Time PCR	15,00,000/-
23	Rotary Evaporator(1)	4,00,000/-
24	Seed Analyzer	10,00,000/-
25	Soxhlet Apparatus	4,00,000/-
26	Tray Bioreactor	20,00,000/-
	Total	3,84,00,000/-

2. Manpower

Faculty Requirement:

The department has highly qualified, experienced and dedicated faculty to provide both classroom teaching and practical instructions. Presently, six permanent faculty members and two guest faculty are involved in teaching and research activities of biotechnology. Keeping in mind the student teacher ratio, additional 09 faculties will be required in different areas for smooth functioning of the programmes under biotechnology.

Office Staff Requirement

For maintaining the office records, administrative and academic functioning of the department following staff is required:

Office Supdt.: 01

Clerks: 01

Computer Operator: 01

Peon: 02

Technical Staff Requirement:

For maintenance and handling of the equipments, functioning of the research and teaching laboratories following technical and laboratory staff is required.

Technical Assistant 07

Lab Assistant 14

3. Furniture: The smooth functioning of the department requires well furnished laboratories and other infrastructural facilities. The approximate budget required for this purpose is approximately 200 lakhs which is distributed as per the following plan:

- a) Establishment of modular labs: 150 lakhs
- b) Furniture and other items for office, faculty rooms and conference room: 50 lakhs
- c) Uninterrupted power back up for laboratories.

4. Consumables: For the proper functioning of the laboratories and smooth conduct of all the practical of UG, PG and other research activities, there is constant requirement of chemicals, glassware and plasticware. The approximate budget required for this purpose is 20 lakhs /year which is distributed as per the following plan:

Undergraduate course: 06 lakhs

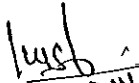
Post graduate courses: 06 lakhs

Research: 08 lakhs

Since its inception, the discipline has grown in every sphere. The faculty has been able to generate the external funding from various government agencies viz., DST, DBT, UGC and publish papers in journals of repute. In addition, a national conference supported by DST, CSIR, DBT, ICMR and Ministry of Environment and Forest was also organized successfully in February, 2010 on topic Bioprospecting: Access for sustainable development. The infrastructure in terms of equipments and other aspects has also grown significantly. The two batches of Bachelor students in Biotechnology have passed and all of them are either placed in good companies or pursuing their higher studies in India or abroad. In addition, the curriculum development workshop for M. Tech Biotechnology was also organized for the commencement of new M. Tech Biotechnology course.

With this background, the department proposes that the new and separate niche/department should be carved for biotechnology. In addition, it is also proposed that the administrative work in the initial phase may be regulated under the supervision of Head, Department of Applied Mechanics.

Submitted for your consideration and further necessary action.


(K. K. Shukla)
Head



यांत्रिकी अभियंत्रण विभाग
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद
इलाहाबाद- 211004 (भारत)

MECHANICAL ENGINEERING DEPARTMENT
Motilal Nehru National Institute of Technology, Allahabad
Allahabad-211004 (India)

Received---
Despatched---
on Dated 18-8-11
Time---
Dean (A. A.)

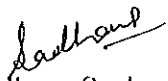
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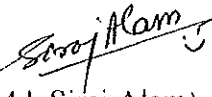
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Registrar

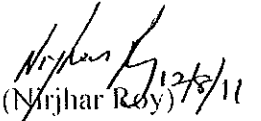
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Date 17-8-11
M.N.N.I.T., Allah.

This has reference to the letter no. 06/Reg. Office/2011 dated: August 03.2011, asking us to submit a proposal for creation of Department of Chemical Engineering. The proposal is attached herewith. We hope that you will find it in order.


(Sachana Sachan)


(Md. Siraj Alam)


(Ritu Arya)


(Nirjhar Roy) 12/8/11
Professor & Head

'0' Dean (Academics)

for next senate meeting.

1/11/11
17/108

Senate file

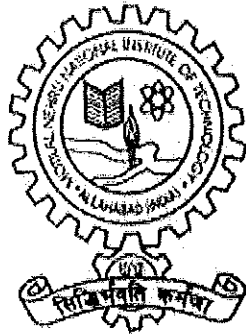
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A

Report on

Plans for the creation of new

Chemical Engineering Department



MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY

ALLAHABAD

Introduction

In July 2006, The Chemical Engineering branch started functions in MNNIT Allahabad under Department of Mechanical Engineering. The department currently offers undergraduate and Ph. D courses in the Chemical Engineering, since its inception. In addition, The Chemical Engineering Department also proposes a post graduate course i.e. M. Tech. in Chemical Engineering. The Two batches of undergraduate students had been passed out from the institute and had proper placement in various organization of repute. The department has currently ten number of research scholar engaged in many cutting-edge technological areas.

Mission Statement

To deliver excellence in undergraduate and postgraduate education by offering solid foundation in both theoretical and applied aspects of Chemical Engineering and aims to respond to current societal needs by developing research programs in many cutting-edge technology areas.

Organizational Structure of the Chemical Engineering Department

The organizational structure of the department is shown here under. Like all system the structure is dynamic and will change with time.

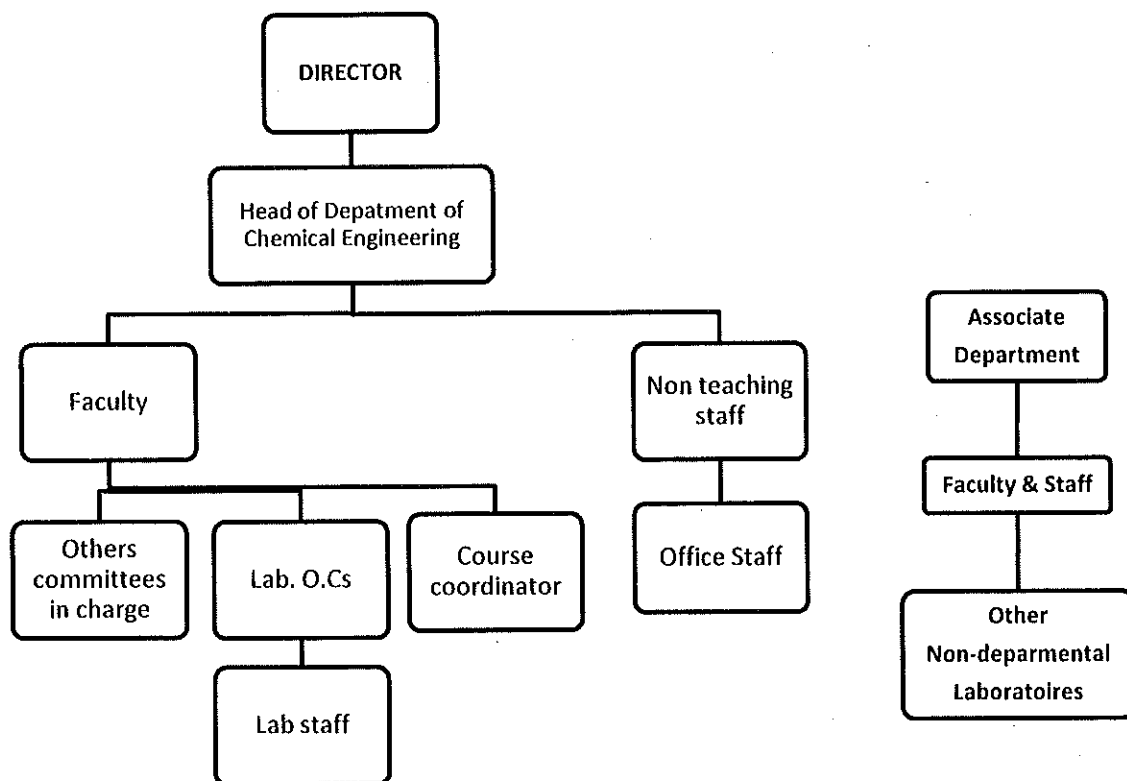


Fig 1: Organizational structure of the Chemical Engineering department

Academic Programme

The projected capacity of 200 students in the department at undergraduate level and 10 students working as research scholar is the strength of the department. The Post Graduate course in the department i.e. M. Tech is in the proposal state. The proposed M. Tech curriculum has already been prepared and it is in approval stage.

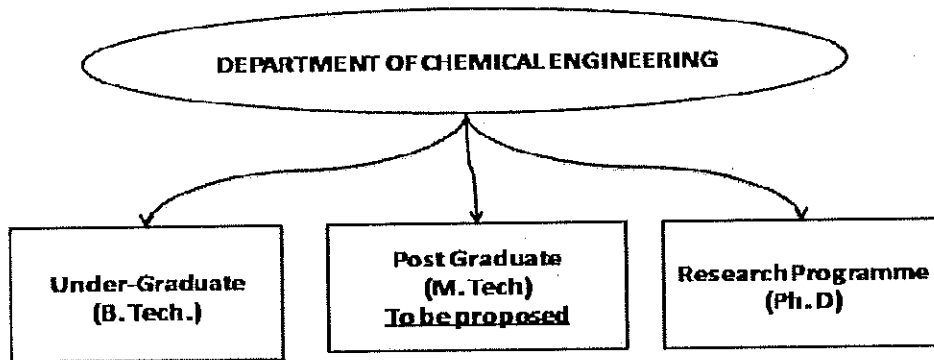


Fig 2: Academic Programme of the Chemical Engineering Department

Why a separate establishment of the Chemical Engineering Department?

The Chemical Engineering Department has been functioning for last five year under the Department of Mechanical Engineering. With the knowledge, time, experience and demand of the situation the Chemical Engineering Department is now able to run the entire function on its own with proper support and monitoring and follow up from administration. In order to function on its own, the Chemical Engineering Department needs the following to strengthen the capability of the department:

(1) **Manpower Recruitment:** Chemical department is not having a single trained person in the field of chemical engineering to assist in conduct of laboratories and other day to day activities. Therefore, a desperate attempt should be made to recruit appropriate manpower in the department. The details of man power requirement are given below:

- **For Office:** Minimum requirement 03
 - Two skilled (a stenographer and a clerk)
 - An unskilled (a Peon)
 - **For 6 UG Labs:** Minimum requirement 12
 - Six skilled (Diploma in Chemical Engineering)
 - Six unskilled (a Peon)
 - **For 2 Research Labs:** Minimum requirement 04
 - Two skilled (Diploma in Chemical Engineering)
 - Two unskilled (a Peon)
 - **For Allied Facilities:** Minimum requirement 02
 - A skilled
 - An unskilled (a Peon)
- Total Man Power Requirement = 21 (11 Skilled + 10 Unskilled)**
-

(2) **Space:** At present, the space is available only for construction of Office and two laboratories for undergraduate courses namely, mass transfer lab, and chemical reaction engineering lab. The details of the infrastructure status are shown in the table below:

Table 1: Status of various facilities of the Chemical Engineering Department

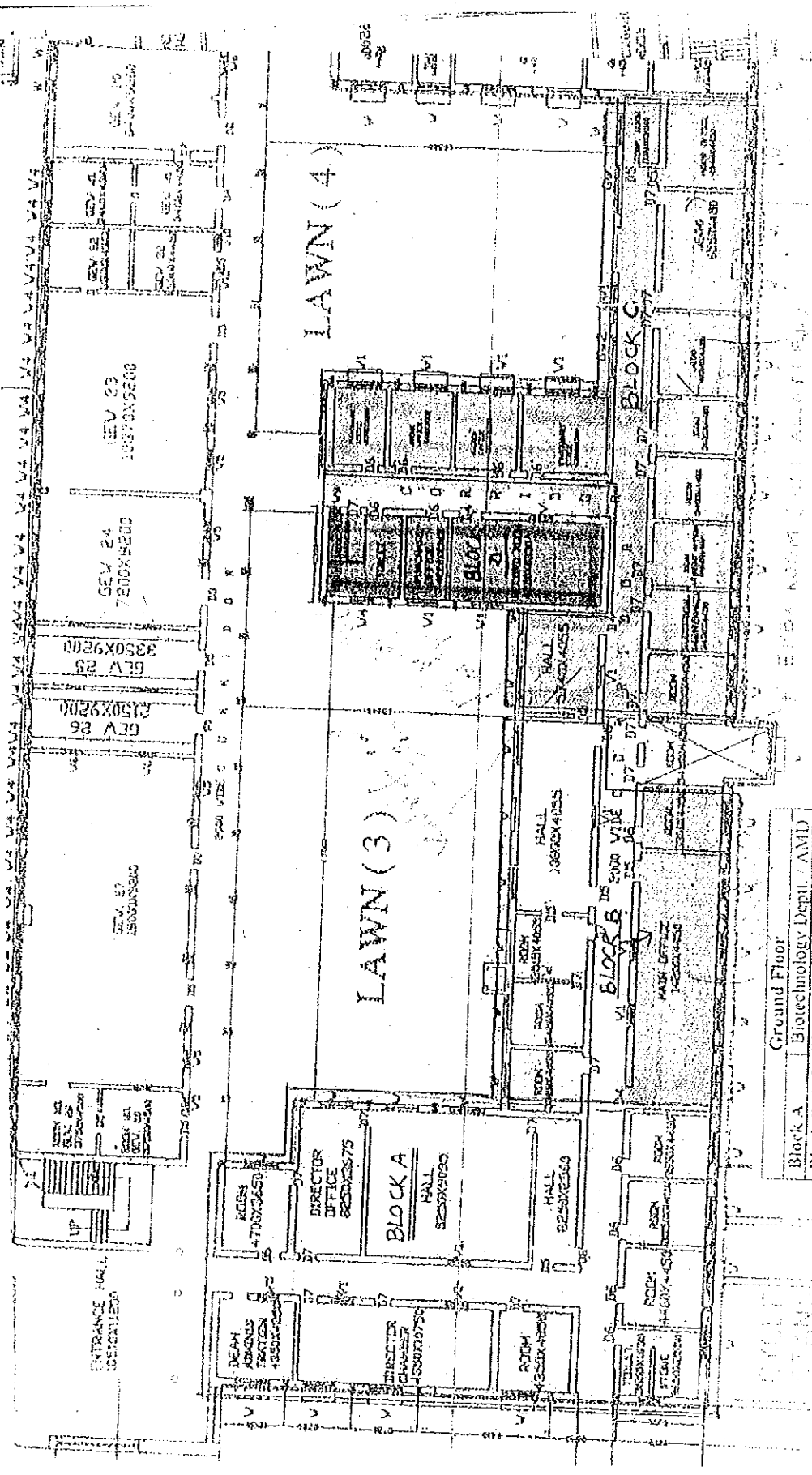
S. No.	Facility /Lab	Status	Remark
A	Office	space available (on the ground floor of Block-C of Chemical Engg. Dept.)	Furnishing required: -A letter has been sent to the ICCM Chairman for Civil and Electrical Maintenance. <u>The work proposal is being prepared by AE (M).</u>
B	UG laboratories		
(1)	Mass Transfer Lab	space available (on the ground floor of Block-B of Chemical Engg. Dept.)	Furnishing required: -A letter has been sent to the ICCM Chairman for Civil and Electrical Maintenance and some modification for conversion of small rooms into big halls. <u>The work proposal is being prepared by AE (M).</u>
(2)	Chemical Reaction Engineering Lab	space available (on the ground floor of Block-C of Chemical Engg. Dept.)	<u>The work proposal is being prepared by AE (M).</u>
(3)	Fluid Particle Mechanics & Mechanical Operation Lab	space not available	For detail, Please refer to Table 2
(4)	Process Dynamics and Control Lab	space not available	For detail, Please refer to Table 2
(5)	Environmental Process Monitoring And Control Lab	space not available	For detail, Please refer to Table 2
(6)	Chemical Technology	space not available	For detail, Please refer to Table 2
(7)	Heat Transfer Laboratory	space not available	For detail, Please refer to Table 2
(8)	CAD Laboratory	space not available	For detail, Please refer to Table 2
	Research laboratories		
C			
(8)	Computer aided process plant design lab	space not available	For detail, Please refer to Table 2
(9)	Chemical Analysis & Testing lab	space not available	For detail, Please refer to Table 2
D	Allied facilities		
(10)	Conference room	space not available	For detail, Please refer to Table 2
(11)	Seminar room	space not available	For detail, Please refer to Table 2
(12)	Departmental library	space not available	For detail, Please refer to Table 2

The space requirements for the various facilities of the Chemical Engineering Department have been listed below

Table 2: Space requirements for the various facilities of the Chemical Engineering Department

S. No.	Purpose	No.	Estimated Area Requirement (m ²)	Space Availability	Suggested area
1	Conference room	01	(15× 12) = 180	No	On the first floor of Block-B of Chemical Engg. Dept.
2	Seminar room	01	(15× 12) = 180	No	On the first floor of Block-B of Chemical Engg. Dept.
3	Departmental library	01	(15× 10) = 150	No	On the first floor of Block-B of chemical Engg. Dept.
4	Research Laboratory	02	2×(15×12) = 360	No	On the first floor of Block-D of Chemical Engg. Dept.
5	CAD Laboratory	01	(18× 12) = 216	No	On the first floor of Block-C of Chemical Engg. Dept.
6	Fluid Particle Mechanics & Mechanical Operation Laboratory	01	(15× 12) = 180	No	On the first floor of Block-C of Chemical Engg. Dept.
7	Heat Transfer Laboratory	01	(18× 12) = 216	No	On the first floor of Block-C of Chemical Engg. Dept.
8	Chemical Technology Laboratory	01	(15× 12) = 180	No	On the first floor of Block-C of Chemical Engg. Dept.
9	Process Dynamics & Control Laboratory	01	(15× 12) = 180	No	On the first floor of Block-C of Chemical Engg. Dept.
10	Environmental Engineering Laboratory	01	(15× 12) = 180	No	On the first floor of Block-C of Chemical Engg. Dept.
Total Area Requirement (m²)			2022		

Note: * Map of the following section has been enclosed with the report for the reference.



There is no any construction on 1st floor of the above area (Block B, C & D). If this area is allotted to Chemical Engg. Department, maximum space requirement of the department may be fulfilled.

[Handwritten signature]

Block A	Biotechnology Dept. / AMD
Block B & C	Chemical Engineering Dept.
Block D	Chemistry Dept.
First Floor	
Block E	ESS Dept.
Block F	Physics Dept.

- (3) **Faculty Recruitment:** Since the department is having only three regular faculty members therefore it is urgently required to recruit faculty in the department.
- (4) **Infrastructure requirement:** The details of the infrastructure status and requirements are given below

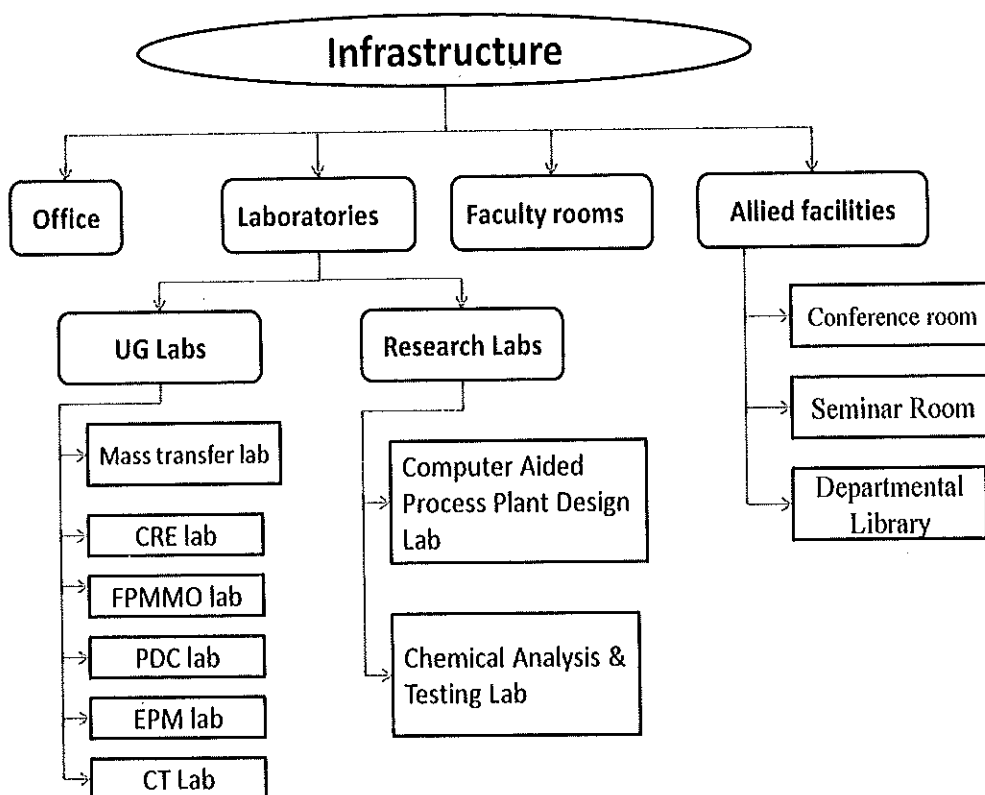


Figure 3: Infrastructure requirements of the Chemical Engineering Department

The furniture and furnishing requirement of various facilities are stated below:

- (i) Required furnishing items for each of the UG and PG laboratories (* Approximate budget of the work is given in Annexure-I):

Table 3: Requirements of the furnishing items for each of the UG and PG laboratories

S. No.	Required furnishing items	Quantity for UG labs	Quantity for PG & Research labs
1	Chair	30	20
2	Table	5	5
2	Printer	1	2
4	Almirah	4	5
5	Book shelf	2	4
6	Computer	2	20
7	Computer table (furnishing)		20
8	File cabinet	2	4
9	A.C	2	3

- (ii) Required furnishing items for the Seminar room, Conference room and Departmental library
 (* Approximate budget of the work is given in Annexure-I):

Table 4: Required furnishing items for the Seminar room, Conference room and Departmental library.

S. No.	Required furnishing items	Seminar room	Conference room	Departmental library
1	Chair	60	30	50
2	Table	2	1	5
3	Almirah	2	2	4
4	Podium	1	1	1
5	Projector set up with computer	1	1	1
6	Computer table	1	1	1
7	A.C	3	3	3
8	White board	1	1	1
9	Book shelf	1	1	10
10	Notice board	1	2	2

- (iii) Required furnishing items for the departmental office (* Approximate budget of the work is given in Annexure-I):

Table 5: Required furnishing items for the departmental office

S. No	Product	Quantity
1	Chair	12
2	Table	4
3	Almirah	4
4	Photostat machine	2
5	printer	1
6	Computer table	1
7	A.C	1
8	White board	1
9	File cabinet	3
10	Computer	1
11	Book shelf	3
12	Notice board	2
13	Fax	1

- (iv) Equipment/Software requirements (* Approximate budget of the work is given in Annexure-I):

Table 6: Equipment/Software requirements for the department

S. No	Product	Quantity
1	High Performance Liquid Chromatography	1
2	Gas Chromatography	1
3	Spectrophotometer	5
4	Syringe Pump	1
5	Oxygen Electrode / Air Analyzer	1
6	Ultra-filtration cell set up and membrane casting	1
7	Pervaporation test set up	1
8	Surface roughness tester	1
9	Microreactor	1
10	High speed camera	1
11	ASPENPROPERTIES	5 user
12	ASPENONE SOFTWARE	5 user
13	ANSYS SOFTWARE	25 user
14	G.PROM	15 user
15	MATLAB	15 user

- (v) Requirement for the each faculty rooms (* Approximate budget of the work is given in Annexure-II):

Table 7: Required items for the each faculty rooms

S. No	Product	Quantity
1	Executive chair	1
2	Executive table	1
3	White board	1
4	Almirah	2
5	Book shelf	2
6.	File cabinet	1
7.	Laptop	1
8.	Scanner	1
9.	Printer	1
10.	Visitor chair	4
11	A.C.	1

- (5) **Laboratories:** At present, the department is providing two out of six labs to its students at B. Tech level. The all other labs are under processes which includes purchasing, furnishing, space allocation and rest in the proposal state. We have following list of equipments :

(A) Process dynamics and control lab equipments

1. Cascade Control Trainer
2. Two Tank Interacting System
3. Two Tank Non Interacting System
4. I to P and P to I trainer kit
5. Dynamic Behaviors of First Order System in Series
6. Control Valve Characteristics

(B) Fluid Particle Mechanics & Mechanical Operation Lab equipments

1. Plate And Frame Filter Press
2. Sedimentation Apparatus
3. Vibrating Screen
4. Hammer mill Pulveriser
5. Weighing Balance

(C) Chemical Reaction Engineering Lab

1. Isothermal Batch Reactor With Air Compressor
2. CSTRs in Series with Air Compressor
3. Plug Flow and Tubular Reactor with Air Compressor
4. Isothermal Plug Flow Reactor
5. Semi Batch Reactor
6. Combined CSTR and PFR
7. RTD Studies in CSTR
8. RTD Studies in Packed Bed Reactor
9. Hydrodynamics of Trickle Bed Reactor
10. Muffle Furnace

(D) Mass Transfer Lab

1. Bubble Cap Distillation Column
2. Forced Draft Tray Drier

3. Vapor -Liquid Equilibrium
4. Mass Transfer with and without Chemical reaction
5. Diffusion of an Organic Vapor in Air
6. Adsorption in Packed Bed
7. Swenson-Waker Crystallizer
8. Steam Distillation Unit
9. Water Cooling Tower

(E) Chemical Technology Lab.

1. Bomb Calorimeter
2. Pensky Martin Flash point Apparatus
3. Clereland's Flash and Fire point Apparatus
4. Electronic Balance
5. Air Oven
6. Muffle Furnace
7. Hot water bath cum Shaker
8. Magnetic Stirrer cum Hot plate
9. PH Meter
10. Conductivity Meter
11. Distillation Unit
12. Heating Mantle

(F) Environmental Process Monitoring and Control Lab

Purchase order has been sent:-

1. Flocculation test Unit
2. Aeration Unit
3. Elutriator
4. Orbital shaking Incubator cum BOD incubator
5. Electronic Balance (Capacity 210 gm)
6. Electronic Balance (Capacity 5 kg)
7. Turbidity meter
8. DO Meter
9. Air Oven
10. Vortex Shaker
11. Hot water bath cum shaker
12. Magnetic stirrer cum hot plate
13. PH meter
14. Conductivity meter
15. Vacuum cum pressure pump
16. Heating Mantle

Summary of the proposal

S. No.	Need/ Requirement	Action to be taken	Budget
1	Manpower requirement Total =21 (11 skilled +10 unskilled)	Recruitment should be done on urgent basis	-----
2	Space requirement	Appropriate space may be identified by Dean, P&D	-----
3	Furniture/Furnishing requirement and lab infrastructure	The requirement has been specified	Annexure -I
4	Faculty Requirement	Recruitment should be done on urgent basis	-----
5	Civil and electrical maintenance requirement	The letter has been sent by the department to ICCM chairman & proposal is being prepared by AE(M) and AE(E)	-----

The golden nuggets for the creation of the Chemical Engineering Department:

The management / administration of institute must consider the following:

1. Space allocation in tune of the 350 square meters.
2. Recurring grant of Rs.15 lakhs on the basis of above mentioned requirements.
3. Non-Recurring grant of Rs. 25 Crores on the basis of above mentioned requirements.
4. Manpower planning
 - a) Faculty :-
 - Professors- 2 Nos.
 - Associate Professors- 3 Nos.
 - Assistant Professors- 5 Nos.

Total numbers of faculty=10 Nos.

Basis for the requirement of the faculty are based on the number of students in the department:

Total number of students = 200; Student teacher ratio = 20:1

Therefore, Number of faculty = $200/20 = 10$

Currently, there are three faculties working in the department, therefore remaining seven numbers of the faculties must be appointed by administration.

b) Non teaching staff :-

- Total number of non-teaching staff = 21
- 11 skilled + 10 unskilled

Basis for the requirement are based on office, laboratories and allied facilities. At present, the department has not a single Non -Teaching staff.

5. There must be an appointment of the Coordinator to look after the follow up.

Annexure I

S. No	Facility	Estimated cost in Lakhs (Rs.)
1	Furnishing items for all labs	100
2	Seminar room	25
3	Conference room	25
4	Departmental library	25
5	Office	20
6	Equipment/Software	500
7	Faculty rooms	40
Total amount		735.00 Lakhs