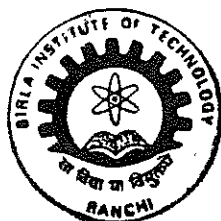
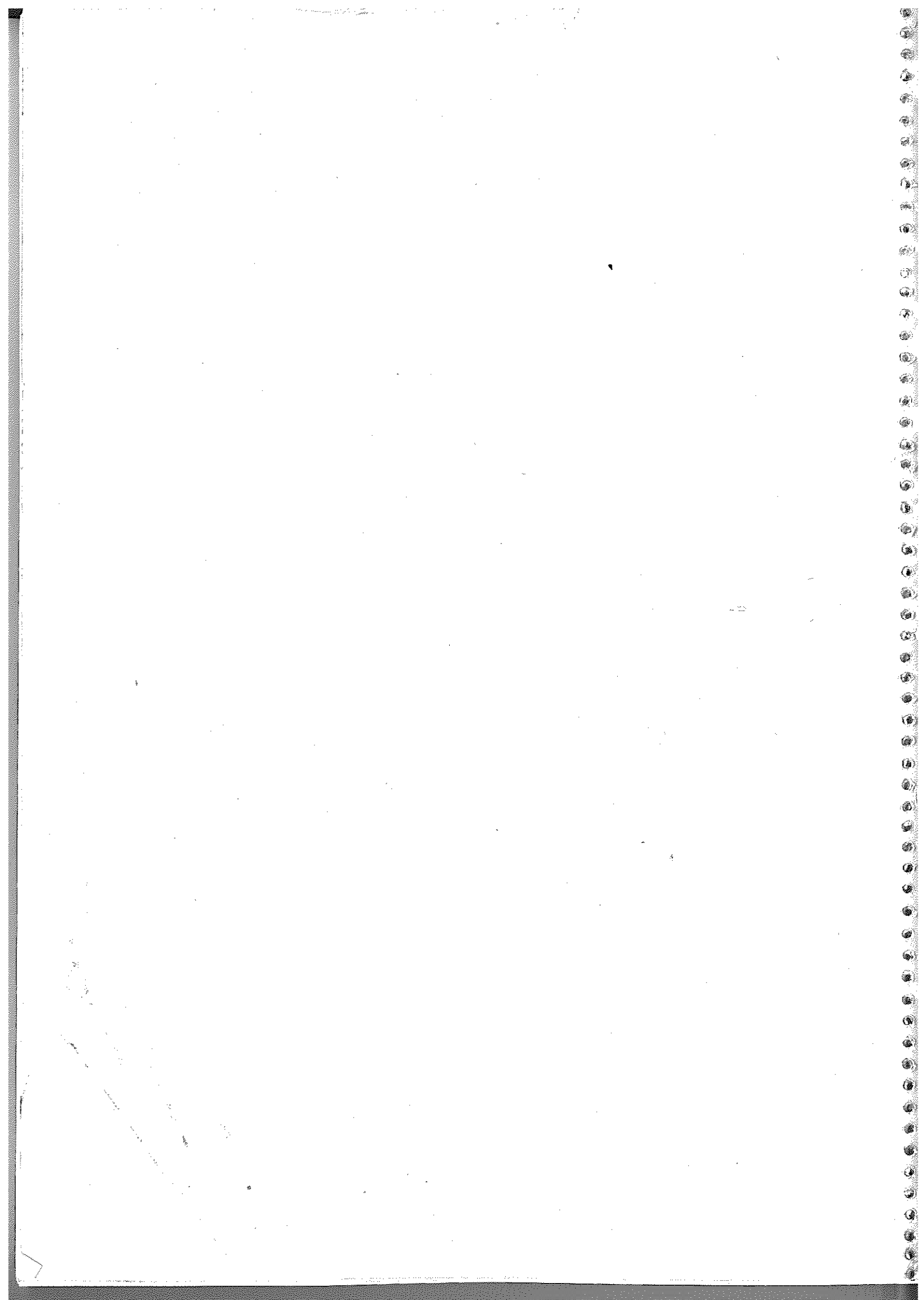


ANNUAL REPORT

1991 - 92

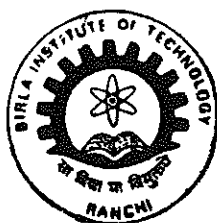


***BIRLA INSTITUTE OF TECHNOLOGY
MESRA, RANCHI (INDIA)***



ANNUAL REPORT

1991 - 92



***BIRLA INSTITUTE OF TECHNOLOGY
MESRA, RANCHI (INDIA)***

I N D E X

	<u>Page No.</u>
1. Director's Note ...	2
2. Administration ...	4
3. General Review ...	5
Brief History ...	6
Courses & Degree Programmes ...	8
Enrollment ...	8
Faculty & Staff ...	10
4. Campus and Physical Facilities ...	13
5. Central Services ...	14
Computer Centre ...	14
Library ...	16
Microprocessor Research Centre ...	17
6. Out-turn of Graduates & Post-Graduates..	30
7. Academic Innovations, Research & Development ...	34
8. Participation of Faculty in National & International Conferences ...	41
9. Research Papers & Books Published ...	43
10. Research Projects ...	47
11. Scholars Registered for Ph.D. ...	51
12. Student Activities ...	53
13. Games and Sports ...	55
14. Students' Halls of Residence ...	57
15. National Cadet Corps ...	61
16. Training and Placement ...	63
17. Rural Housing Development Centre ...	64
18. Annexures	
I. Board of Governors ...	66
II. Technical Council ...	66
Finance Committee ...	66
Building & Works Committee ...	67
III. Executive & Departmental Heads/Incharges ...	67

#####

DIRECTOR'S NOTE

The academic year 1991-92 has been one of hopes and disappointments. The functioning of this Institution has continued to be smooth and the programme of modernization of laboratories has updated the quality as well as the range of equipment to make the B.I.T. laboratories among the best in the eastern region. Research programmes have continued to develop at a brisk pace with larger and larger interaction with major industries in the area. Basic facilities have been created for initiating new programmes both at the Under-graduate and Post-graduate levels.

On one hand the continued development of the Institute has generated major hopes for quantum-jump in the stature of the institution so that B.I.T. finds its place among the very top technical Universities of the country and is able to serve the cause of the technical education research and industry, in consonance with its real potential, however, on the other hand the problem of meeting the recurring expenditure has become more serious and all efforts of the Institute for a permanent solution are still to bear fruit. Major efforts made by the Institute in this direction both at the Central Government as well as the State Government levels have yet to elicit a positive response. This has been a major disappointment.

Keeping in mind the rapid development of the Institute in the last few years and its potential to be realised, it has been decided to make structural changes in its administration and adopt the normal University pattern. This would allow greater flexibility of work and would permit de-linking of water-tight compartments so that the limited funds can be made to go a long way. In spite of the resources constraint planning has to be continued for

providing additional facilities for research, curricular and extra-curricular activities. The admission of bright young boys and girls every year imposes a heavy responsibility on the Institution. Certain minimum facilities have to be provided if only to do justice so that their talent can blossom.

In the academic session 1992-93 the Institute had to, very reluctantly, increase the tuition and other fees as even the committed funds by the Government were not forthcoming. The increases are within the AICTE norms and only meet partly the additional deficit anticipated this year. The rate at which the expenses are increasing indicates that other sources of revenue must be found and found quickly, for any further increase in fee would certainly cause hardship and might make quality technical education beyond the reach of many a talented student.

A lot of hard work has gone into building B.I.T. to its present status. Still harder work is required to maintain the quality and standards and one can only hope that the Government, realizing the need for excellence in education, would assist the Institute to maintain its reputation.

B.I.T., Mesra, Ranchi
Dated: June 30, 1992.

ADMINISTRATION

B.I.T. is a 'deemed University' under sec. 3 of the UGC Act, 1956. It functions under the overall supervision, direction and control of a high-power Board of Governors, comprising representatives of the Ministry of Education, Govt. of India, the UGC, the State Govt., the Chancellor, the AICTE, the Trust and the Institute Faculty. Mr. G. P. Birla is the Chairman of the Board of Governors. The Governor of the State of Bihar is the Chancellor of the Institute. Composition of the Board of Governors is given in Annexure - I.

The Technical Council decides the academic policy of the Institute. It controls and approve the curriculum, courses and examination results. It appoints Committee to look into specific academic matters arising from time to time. The teaching, training and research activities of various departments at the Institute are constantly under review to improve both facilities and standards. The Director of the Institute is the Chairman of the Technical Council. Members of the Technical Council are listed in Annexure - II:

Financial advice to the Institute is given by the Finance Committee whose constitution is given in Appendix II. Similarly, the Building and Works Committee advises the Institute in matters relating to building works activity. The constitution is also given in Annexure - II.

In addition there are a number of other committees like the Regulation Committee for Under-graduate and Post-graduate courses, examination Committee, Semester Programme Co-ordination Committee, Admission Committee, Scholarship Committee, Students' Welfare Committee etc. which are appointed by the Technical Council to help the administration in the efficient running of the Institute.

GENERAL REVIEW

BRIEF HISTORY

The Institute was established as an All India Institute for imparting Technical Education and Research in 1955 by the Hindustan Charity Trust. Initially it functioned as an affiliated college of the erstwhile Bihar University and later in 1960 upon creation of new Universities in the State, its affiliation was transferred to the Ranchi University.

In pursuance of the recommendations of the Education Commission, Government of India (1964-66) and on the basis of the report of a Joint Selectn. Committee of the UGC and AICTE, in March, 1972 the Institute was granted the status of an 'Autonomous' College by making special provision in Bihar State Universities Act. The Rules for its governance were made by the Chancellor of the Universities of Bihar.

On the basis of its continued excellence, and approval by the UGC, the Institute was declared a "Deemed University" in August 1986 under Section 3 of the UGC Act.

Since its inception the Institute is updating its academic standards, and has now acquired a pride of place in Technical Education and is one of the Premier Institute in Eastern India.

COURSES & DEGREE PROGRAMMES

Currently it is offering a variety of curricular programmes as detailed below:

Course	Intake capacity	Duration of course	Year of introduction of the course
<u>I. BACHELOR OF ENGINEERING</u>			
1. Civil	45	4 years course	1957
2. Computer Science	30	-do-	1983
3. Electrical & Electronics	45	-do-	1955
4. Electronics & Communication	60	-do-	1964
5. Mechanical	60	-do-	1955
6. Production	30	-do-	1964
<u>II. PHARMACEUTICAL SCIENCES</u>			
1. B. Pharmacy	30	-do-	1972
2. M. Pharmacy	10	3 Semester or 1½ years	1983
(i) Pharmaceutical Chemistry			
(ii) Pharmaceutics			
<u>III. MASTER OF ENGINEERING</u>			
1. Civil	2	-do-	1965
Soil Mechanics Structural & Foundation Engg.			
2. Electrical	12	-do-	1964
(i) Control System & (ii) Power System			
3. Electronics & Communication	12	-do-	1965
(i) Instrumentation (ii) Microwave Engineering			
4. Mechanical	6	-do-	1964
Heat Power Engineering			
5. Space Engineering & Rocketry	10	-do-	1965
(i) Rocket Propulsion & (ii) Aerodynamics			

Course	Intake Capacity	Duration of Course	Year of intro- duction of the course
--------	--------------------	-----------------------	--

IV. COMPUTER APPLICATIONS:

(a) Master of Computer Applications	30	3 Years	1984
(b) Diploma in Computer Applications	30	1 Year	1988

V. BUSINESS ADMINISTRATION:

(a) Master of Business Admn. with specialisation in: (i) Marketing, (ii) Finance, (iii) Systems and (iv) Industrial Management	30	2 Year	1980
(b) Diploma in Business Admn.	30	1 Year	1982

VI. DOCTOR OF PHILOSOPHY:

The Institute offers Research Programmes leading to Ph.D. Degree in all the above disciplines.

Note : Additional programmes for Under-graduate Degree Courses in Polymer Engineering as well as Architecture are under process.

VII. CONTINUING EDUCATION(PART-TIME)POST-GRADUATE PROGRAMME:

To enable Working Engineers to update their technologies, the part-time Post-graduate Programme offers 3 levels:

- A Certificate of Merit after completing 5 units
- A Diploma after completing 10 units and
- A Degree after completing 15 units of course work.

The disciplines are:

1. Civil Engineering : Structural Design
2. Computer Applications : -
3. Electrical Engineering : Control System & Power System.
4. Management : Marketing, Personnel, Industrial Management, Finance and Systems.
5. Mechanical Engineering : Design of Mechanical Equipment.

ENROLMENT

There are 1511 students who have enrolled during the current Academic Year 1991-92. The branch-wise enrolment is detailed below. Of these there are 188 girl students and 68 foreign students:

	<u>Full Time</u>	<u>Part Time</u>
B.E.	1038	-
B.Pharm.	83	-
M.C.A./D.C.A.	135	58
M.B.A.	36	41
M.Pharm.	20	-
M.E.	58	42
	<u>1370</u>	<u>141 = 1511</u>

FACULTY & STAFF

Against the sanctioned strength of 173 Faculty positions, 150 are filled with 23 vacancies. The break-up is as follows:

<u>Category</u>	<u>Sanctioned Strength</u>	<u>In Position</u>	<u>Vacancies</u>
Professors	44	40	4
Associate Professors	49	46	3
Lecturers & Associate Lecturers	80	64	16
	<u>173</u>	<u>150</u>	<u>23</u>

The number of administrative and supporting staff are approximately 250. In addition, there are about 300 Class-IV Staff to look after the General Maintenance of electricity, water supply, Gardens, Security, Hostels and allied services. It may also be mentioned that under the Welfare Programme for the weaker sections of society specially from villages adjoining the Institute Campus, the Institute has engaged about 150 persons as Trainees/Apprentices in various technical and other trades. While under training these persons are paid some allowance/stipend on a regular monthly basis and they are absorbed in regular posts against vacancies arising, from time to time.

All academic staff have been provided accommodation on the Campus.

About 60% of the administrative and other supporting staff have also been provided accommodation on the Campus.

CAMPUS AND PHYSICAL FACILITIES

The Institute is fully residential and extends over 780 acres. The main buildings of the Institute covers an area of over 30,000 sq. mtrs. and accomodates the various research and training laboratories, administrative offices, lecture rooms. The Workshop annexe has a covered area of 4,000 sq. mtrs. The laboratories and offices of the Department of Space Engineering & Rocketry are situated for security reasons in a sub-campus, about half a kilometer away.

For the convenience of working Engineers to participate in Post-graduate programmes a technology Centre was established in Ranchi City at Lalpur in 1976.

The campus is self contained amidst well laid lawns, with its own protected water supply, marketing centre, dispensary, bank and schools.

II. Description of Buildings on the Institute

<u>1. Institutional Buildings</u>	<u>Sq.mtrs.</u>
i) Main building & Administrative Block	3700
ii) Class room and laboratories, Drawing Halls, Staff rooms etc.	9300
iii) Library Block	2600
iv) Space Engg. & Rocketry Block including explosive and Rocket Fuel Centre	930
v) Workshop Sheds, General Stores, Garrage/Godown	3721
vi) Gymnasium	850

<u>2. Others</u>	<u>Sq.mtrs.</u>
i) Animal House	400
ii) NCC Block	400
iii) Primary/High School (temporarily housed in Mechanical Engg. Block	744

Note: During the year 1987-88 a Navodaya Vidyalaya has also been established in the Institute campus. Presently it is housed in temporary sheds constructed for the purpose. The work of construction of Navodaya Vidyalaya Complex is in progress.

III. Residential Complex

- i) Staff Quarters in different categories 296
- ii) Residential Complex for supporting services: 70
Forest Guards, Diary, Shop Keepers, Washermen etc.

Note: During the year 1991-92 work of construction of a block of 4 Staff Quarters is in progress.

IV. Hostels

- i) Seven Boy's Hostels 1450 Single Rooms
- ii) One Girls' Hostel 60 rooms
- iii) One Foreign Students Hostel 32 rooms

V. Guest accommodation

The Institute maintains two Guest Houses. A General purpose Guest House with 8 furnished rooms and a VIP Guest House with 3 deluxe double bed rooms to accommodate guests appropriately.

VI. Auditorium

To meet the growing needs of the community for public functions an Open Air Theatre is partly completed and can seat 2500.

VII. Games & Sports

The Institute has a Gymnasium and is spacious enough to accommodate indoor games. Extensive play grounds are provided to facilitate sports. They are:

1. Field Tracks for Sports/Atheletics/ Cricket.	-1
2. Football ground	-2
3. Hockey grounds	-2
4. Basket Ball grounds	-4
5. Volley Ball grounds	-6
6. Tennis Courts	-6
7. Badminton Courts	-6(1 indoor court)
8. Rifle Firing Range	-1
9. NCC Parade ground	-1

VIII. Canteen services

A Moderately furnished canteen, provides snacks for students and staff.

IX. Dispensary-cum-Health Unit

A eight bed health care unit serves the large campus community mainly as an outdoor patient unit. This unit supports three full time doctors. Excellent rapport exists for acute medical needs with the Government Medical College Hospital at Ranchi. The construction of the new Hospital building is nearing completion.

X. Marketing Centre

A well run Cooperative Stores provide the daily requirements of the campus of nearly 5,000 residents. Additional shopping complex is provided for sundry needs.

We hope to establish a full fledged marketing centre and cooperative Book Store to meet the growing needs of the campus. The annual needs exceeds Rs. 2 crore mark. The construction of Marketing Complex is in progress.

CENTRAL SERVICES

COMPUTER CENTRE

Computer Centre provides the central facility for the students and staff members of this Institute. It started on a modest scale with PDP-11/34 Mini computer from D.E.C., U.S.A. in 1982 and has upgraded the infrastructure from time to time not only to meet the ever increasing requirements of the Institute but the training facilities for the outside user. SN-73 which is upward compatible to PDP-11/34 has been installed and large number of BBC Micro-computers, IBM-PC's, PC-XT's and a PC/AT computer are used continuously by the users. The software support includes FORTRAN-77, BASIC, COBOL, PASCAL, C, LISP and PROLOG. We also have installed a local area network (LAN) using 80386 based file server very recently.

With support from the Dept. of Electronics, Govt. of India a "Resource Centre" for Computer Literacy and Studies in Schools (CLASS) has been established in this Institute in 1984. A series of 3 weeks duration training programme are organised for the school teachers from various schools of the Eastern Region. Under this programme after training the school teachers in the effective use of computers, the respective schools are given two BBC Microcomputers with all the necessary software. The maintenance of these computers and software needs of the schools are met by the BIT resource Centre.

In addition to providing the educational and training facilities the Computer Centre has completed many software projects. It is maintaining the pay-rolls for the Institute and academic transcripts of all the students.

With the support from Department of Electronics, Govt. of India, we are acting as a resource centre for MCA Teachers Re-orientation Training Programme from the year 1988. The participants are selected on all India level which will benefit the participating teachers for their re-orientation of MCA courses at Post-graduate level.

LIBRARY

The Library subscribes over 260 Indian and foreign journals annually. During the current year 1500 volumes were added to the existing stock of library. The up-to-date stock of the library comprises of 53,000 books and 14,010 back volumes. Facilities for microfilming and photocopying are also being provided by the library. During the year 1990-91 the first floor of the Library Building has been completed providing additional space of about 1100S.mtr.

MICROPROCESSOR RESEARCH CENTRE

During this year the laboratory facility have been expanded to facilitate application programming on fast 32 bit processors namely:

- (a) 68020 at 25 MHz, programming and real time trigger trace with performance analysis.
- (b) IMST 414 Transputer System for 32 bit multiprocessor environment, emulation using PC-XT, to yield system throughput upto 10 MIPS, using occam language.

both these system design facilities are unique in the eastern sector, and gives BIT the design ability on fast real time processor based system development.

The Hewlett-Packard 9000-350 system has been installed for AI applications with UNIX-OS C, Prolog, and Lisp and assembly language facility. The system is the state of the art machine capable of expansion. Currently the HP 9000 is networked with two HP 64000 development stations to constitute the 'HP-Design Centre'.

The laboratory has completed the following projects

- (a) Gamma ray thickness Gauge for Tinsplate Company
- (b) Non contact automatic length measurement system for Usha Industries.
- (c) Control of Ortho cyclic winding machine for Usha Industries.
- (d) Eddy current inspection of fast moving tinplates.

Collaborative programmes are initiated with local R & D groups for automatic gauging of rolled steel items by laser techniques combined with Microprocessor instrumentation, in-circuit PC-board checking of industrial PCB's using PC-XT and the development of specialised programmes for public sector industries.

OUT-TURN OF GRADUATES & POST-GRADUATES

During the year 1991-92, 453 students have qualified for the award of Degrees and Diplomas of the Institute; 294 for Under-graduate Degrees(B.E./B.Pharm.) and 159 for Post-graduate Degrees(M.E., M.Pharm., M.B.A., M.C.A. & D.C.A.) and 2 for Ph.D. Degree; the break-up is as follows:

	<u>No. of students graduated in 1991-92.</u>	<u>Total No. of graduates upto 1991-92.</u>
I. <u>Under-Graduate Degree</u>		
<u>B.E. (4 - Yr. Degree Course)</u>		
Civil Engineering	19	
Computer Science	45	
Electrical & Electronics Engg.	67	
Electronics & Comm. Engg.	53	
Mechanical Engineering	61	
Production Engineering	<u>14</u>	259
<u>B. Pharm. (4 - Yr. Degree Course)</u>	33	8342
		<u>375</u>
		<u>8717</u>
II. <u>Post-Graduate Degree</u>		
<u>M. E.</u>		
Civil Engineering	5	
Electrical Engineering	9	
Electronics & Comm. Engg.	10	
Mechanical Engineering	10	
Space Engg. & Rocketry	12	57
<u>M. Pharm.</u>	8	306
<u>M.B.A.</u>	14	95
<u>M.C.A.</u>	9	463
<u>D.C.A.</u>	35	145
		<u>85</u>
		<u>1094</u>
III. Ph.D.	2	31*

Note :- * The figures indicate the Ph.D. Degree awarded after Institute's becoming Deemed University in 1986.

ACADEMIC INNOVATIONS, RESEARCH & DEVELOPMENT

With the support of the Government of India during 1991-92, the Institute has been able to establish and develop infrastructure for interdisciplinary arena of research, and instructions in engineering, pharmaceutical and Applied Sciences. During the year additional facilities have been created for Post-graduate studies and research in the area of applied sciences to meet the needs of specialized research workers and teachers. New programmes for Industry-Institute interaction have also been developed.

Detailed planning for introducing a wide range of academic programmes both at the Under-graduate and Post-graduate levels has been accomplished; new programmes proposed to be introduced from the next academic session for which necessary formalities/approvals of the concerned authorities is in process include M.Sc. Information Science, M.Sc. Applied Sciences, M.Pharm. in Pharmacognosy and Pharmacology, B.Arch. and B. Polymer Engineering.

In order to undertake advanced studies in the evaluatory aspects of scientific development, a 'Research Cell' for studies on 'History of Science' has already been established at the Institute. This Cell, headed by Prof. R.C. Gupta, the founder faculty member of international repute, is continuously growing with richer collection of books, journals and other materials for initiating investigation for research work. The Centre is duly recognised by the Indian National Academy for supervising and guiding research. Prof. Gupta who is also the Indian representative in the 'International Commission on History of Mathematics', was nominated as the "Man of the Year - 1990" by the American Biographical Institute, USA. For his contributions in the field of History of Mathematical Sciences, Prof. Gupta has been elected Fellow of the National Academy of Sciences, India, in 1991.

In pursuance of the new Education Policy of the Government of India, the Institute is keeping pace with the latest technological advances in identified areas of emerging technologies and is creating and establishing necessary infrastructure for Education, Research and Training. The Microprocessor Development Centre has already established a rapport with SAIL, MECON, CMPDI, HEC for design and development of instrumentation and control systems for real time Computer controls. Artificial intelligence and Robot technology are being moved from the research domain to the solution of practical problems.

PLASMA ENGINEERING :

Currently, we are in the process of developing Plasma Engineering Laboratory. Since last few years the Institute has been actively engaged in developing Plasma Technology facilities, basic infrastructure and laboratory for research work and investigations on the propagation of Electromagnetic Waves in Plasmas.

Last summer, during July 1991, on the invitation of the Institute two eminent American Professors - (i) Prof. Igor Alexeff of the University of Tennessee and (ii) Prof. D. Kalluri of the University of Massachusetts visited the Institute for about two weeks and had detailed consultations with the Institute faculty for developing these facilities further. The Institute's proposal for a collaborative programme with the Universities of Tennessee and Massachusetts for developing a course in Plasma Technology at the Post-graduate level and for development of the laboratory under their guidance was discussed. A letter of intent for collaboration was also sent to the University of Tennessee who has responded favourably to establish a collaborative programme with the Institute.

SPACE Engineering & ROCKETRY :

It is significant to place on record that the Institute has been the pioneer among the technological institutions to start the programme of Post-graduate studies and research in the area of Space Engg. & Rocketry. It has successfully developed several rocket fuels for solid propellant rockets and has set up a sophisticated research facility in Hybrid and liquid propellant technology. Several projects have been undertaken for the Ministry of Defence, Atomic Energy Commission and I.C.A.R. The work on gelled propellants is noteworthy.

Extensive investigations and research work has been done by the Department in the area of Aerodynamics, Propellant technology, Rocket Propulsion and Composite Materials, as under:

AERODYNAMICS :

The studies on swept leading edges have been carried out in supersonic stream at a nominal Mach No.1.8 and the effect of sweep back angles, subsonic and supersonic leading edges on load distribution on the wing and flow conditions on the wing has been studied.

Computation of flow parameters over a circular cylinder and over an aerofoil has been carried out by panel method. The circular cylinder yields excellent results only with eight source panel whereas the aerofoil required many more. In both the cases computations with panel technique prove to be quite powerful and accurate for inviscid 2-D cases.

In the field of Grid generation and Impliciting finite difference Flow simulation about 2-D bodies the effectiveness of grid generation for complicated geometries like circular cylinder and aerofoil has been studied starting basically with the full form of Navierstokes equations. Crowding of the grid lines in the region where body slope

changes abruptly has been demonstrated apart from accurate flow field computation with efficiency.

A Computer code in C-language has been developed for the nozzle configuration for supersonic/hypersonic case based on the conservation laws in terms of flux variables. The code is based on Mac Cormack's Predictor - Corrector approach.

AERODYNAMIC STUDY OF CANARD WING INTERFERENCE IN RELATION TO A LCA :

The study of aerodynamic behaviour of canard wing interference at high angles of attack has been carried out on an experimental basis. The study is related to a L.C.A. National Project which is likely to be completed by 1994-95 for trial flight.

The computational work in respect of Flow Computation Past a Right Circular Cylinder is based on Pascal language and it has been observed to consume less computer time than FORTRAN 77 with excellent computational accuracy.

PROPELLANTS AND ROCKET PROPULSION :

The research and development work in the area of high energy gelled systems has been carried out. A comprehensive study on the theoretical performance evaluation of the gelled and metallized UDMH-RFNA bipropellant systems has been conducted with a view to ascertain the extent of gain in performance on metallization and operating chamber pressure enhancement. A novel research programme with the support of Indian Space Research Organisation has been initiated to formulate thixotropic gelled propellants of Monomethyl Hydrazine - a propellant to be used in upper state of ISRO's future launch vehicles.

The rheological studies on composite solid propellants have been done with a view to understand the effect of oxidizer loading, oxidizer particle size distribution and temperature on apparent viscosity of the propellant mix. The results of the study would form a new basis for determining propellant pot life and designing casting fixtures.

The research work for the development of fast burning HTPB based composite solid propellants has been done. A new approach of modification of oxidizer has been used to realise the objective. The finding points out towards a favourable application of the developed propellant compositions in booster stage of the launch vehicles.

The effect of pretreatment of AP with and without catalyst (Fe₂O₃) on burning rate of composite propellant has been studied. The results show that the use of preheated AP increases the burning rate and keeps the combustion index at lower level which is must for stable operation of solid rocket motor. It has been found that ferric oxide which is a good burning rate accelerator also serves the purpose of anticaking agent.

The burning behaviour of HTPB-AP based composite solid propellants at subatmospheric and higher chamber pressures has also been investigated. The effect of oxidiser loading metal powder addition and various catalysts on burning rates has been investigated.

The small rocket motor test firing have been conducted to study the combustion characteristics of PVC-AP composite solid propellants containing different Aluminium powder concentration. In a separate series of test firings, combustion studies of true PVC Plastisol hybrid fuel grains in the stream of gaseous oxygen have been carried out for a fixed oxidiser injection pressure and constant duration. The

test data of hybrid combustion have been used to co-relate the combustion behaviour qualitatively and determine the contribution of the different ingredients on the combustion characteristics of solid propellants. The condensed phase reactions have been established to play a dominant role on the combustion of solid propellant in diffusion controlled flame zone.

COMPOSITE MATERIALS :

The fabrication facilities to prepare composite materials specimen by Hand Lap Up technique and Vacuum Bag technique have been set up. The specimens of different orientations, different fibre volume fractions, different thickness, different shapes and different aspect ratio have been fabricated.

The experimental fixtures have also been designed and fabricated to study the buckling strength of composite materials.

The research work has been carried out to study the buckling strength of specimens when (i) all the four sides simply supported and (ii) three sides simply supported and one side free.

RURAL ENGINEERING :

As initiated during the preceeding years, fibre reinforced cement sheets, design and implementation of low cost housing and improvement in rice husk cement are now on nearly completion stage. The new low cost house designs and models for effective dissemination of knowledge regarding earthquake safety and flood mitigation along with a model of rural water supply scheme to be applied to the water starved districts of the State have been exhibiting encouraging results.

Ground water plays an important role in the development and management of water resources. The ever increasing demand due to explosive population growth, coupled with industrial and agricultural requirements has put an enormous strain on this valuable resource. The research work concerns developing a generalised model for pumping activities of aquifers. The practical sustained yield without damaging aquifer characteristics in relation to recharge and withdrawals for steady and unsteady flow conditions are being investigated.

Experimental investigations on the flow characteristics of an oblique weir has been initiated in the laboratory. The variation of discharge coefficient with respect to height and thickness of weir for various oblique angles are being investigated. Modular and nonmodular conditions of weir is extensively studies.

HYDROLOGY :

A comparative study of various methods like SME MAX (small-median-maximum) transformation SP-PDF (sine power probability density function). Gumbel and Log Pearson method are adopted for a short and long term datas. The realiability of these data under above methods are being investigated.

ENERGY :

A Hi-tech Wind Energy Convertor of German design has been acquired and installed at Puri(Orissa) for experiment. A solar heat convertor based on an Australian design has been developed which is leading the way for designing an experimental 100 Kw steam generating station. Significant research work has been carried out in the area of bi-fueling of I.C. Engines. Emphasis has been laid on investigation into the suitability of various types of alternate fuels for reciprocating combustion engines. Bio-gas energy and geo-thermal energy research works have also been initiated.

The proposals of this Institute in this regard are under consideration of the Government of India.

Research programmes in collaboration with SAIL(R&D) and MECON for development of new materials for hostile environment and CAD analysis of shape control in cold Rolling research has been under progress.

PRODUCTION ENGINEERING :

A new Laboratory 'Computer Aided Manufacturing/Design' (CAM/CIM) with necessary equipments has been added in the Department. The Ergonomics Laboratory has also been equipped with ECG Equipment, Pulse Meter and B.P. Instruments. Research in the field of Industrial Robotics and flexible manufacturing is under progress.

Currently the Department is working in collaboration with Heavy Engineering Corporation (HEC), Ranchi on the project 'Long term plan for automation' including CNC retrofitting suitable for Indian environment.

COMPUTER ENGINEERING :

The Computer Engineering Department has extended facilities by adding two more users' terminal rooms for SN-73 System and the other for Magnum-IV system, Microvax-II with 8-terminals, CP 486 system with 8-terminals, 20 nos. of PC, PC/XT and PC/AT's.

The Department is involved in Software development activities for Government of Bihar and Calcutta Medical Research Institute.

During the year under report the Department of Computer Engineering has conducted several short-term courses on 'Computer Applications' for employees of the Banks and also for other Educational Institutions in the State.

Some of the Equipment added in the laboratories of the Department include :

Mini Computer Magnum IV with 40-terminals, Mini CP 486 RISC based Modi Olivetti System, Personal Computers PC, PCXT's Digital VAX - 5100 RISC based.

Microvas-II with 8-terminals, CP-486 system with 16-terminals Digital VAX-5100 with 32-terminals, 20 nos. of PC PCXT and PC/AT's, 40-terminals to Magnum system, one more Computer Lab. for 40 students.

APPLIED PHYSICS :

A Spectrophotometer - Model AA-680 have been installed in the Department of Applied Physics to provide experimental base for theoretical research in Polymer Technology. Design of Heterostructure Lasers for use in Optical Communication Systems and Computers is under progress.

PHARMACEUTICAL SCIENCES :

Extensive Research work in the areas of Pharmaceutical Chemistry, Pharmaceutics, Pharmacology and Pharmacognosy has been carried out in the Department. During 1991-92 the Department has sent proposals to the U.G.C., Government of India to introduce courses in Bio-technology, Pharmacology and Pharmacognosy. The approval of the Board of Post-graduate Studies is still awaited.

Pharmaceutical Chemistry :

The work involves synthesis and Pharmacological evaluation of Potential Medicinal Agents and includes:

- (a) synthesis and Pharmacological evaluation of pyrazole analogs.
- (b) synthesis and Pharmacological evaluation of indan analogs.

- (c) synthesis and evaluation of pseudopellitierine analogs.
- (d) evaluation of different oils as substitute for oils used in pharmaceutical preparation and for edible purposes.
- (e) studies on antidiabetic principles from plant sources.
- (f) Amino acids as pro-drug.
- (g) phytochemical, pharmacological and pharmacognostical evaluation of medicinal plants.
- (h) phytochemical/pharmacognostical and agrotechnical studies on medicinal and aromatic plants.

Pharmaceutics :

The research works in pharmaceutics area include bio-availability, stability of formulation, evaluation of dosage forms, development of newer excipients for pharmaceutical formulations, controlled release formulations and include :

- (a) role of crystal habit in stability & bioavailability
- (b) effect of long chain fatty acids on the stability of emulsion.
- (c) development of an In-Vitro method for evaluation of dosage.
- (d) use of lac-based products as pharmaceutical adjuvants
- (e) In-vitro evaluation of commercial anta-acid formulation
- (f) development of trans-dermal drug formulations

Some of the Equipment added in the Department during the year under report are:

C,H,N analyzer,
Differential Scanning Colorimeter - 50 Nos.,
Digital Dissolution Test Apparatus.

ELECTRONICS & COMMUNICATION ENGINEERING :

Theoretical Modelling and simulation of solid-state devices for high speed and optoelectronic application have been an active arena of research in the Department. The work on the project - "Computer Simulation of Heterojunction solid-state Photodilectors for Fibreoptics Communication Systems", sponsored by the Department of Science & Technology, Government of INDia is in progress. During the year under report, a number of novel solid-state source delectors structures for integrated optoelectronics applications have been introduced. These include Double-Heterostructure InAs/InAs Sb Light - emitting - Diode for application in 2m to 6m wavelength region, High Electron - Mobility - Phototransistor and Photo-MISFIT. Further, a number of compact Computer programmes using Fortran-77 and Turbo-Pascal for simulating the devices on IBM PC (Ax/xT) have also been developed. These programmes provide global characteristics of the devices as well as useful design data. Work on the Research Project entitled "Development of Optical Fibre Communication System for Underground Mines" is in progress. Moreover, research programmes in collaboration with SAIL(R&D) and CMPDI on the development of Fibre based systems and on Linw Communication system for underground and open cast mines are also in progress. Research work in the area of Fibre Sensors, FOLANS, High Frequency Optical Devices and Development of CO₂ Gas Analyzer System for Environmental Pollution monitoring has been undertaken in the Department.

In addition to the research and development works, new courses and projects have been introduced in optical-communications and integrated optics, picturephone, fibre optic sensors, remote optic sensing and fibre and videobased digital holography.

Sweep oscillators, scalar Network Analyser, Spectrum Analyser, H.P. Plotter and Power-meter om nw range are the some of new equipment added in Department during the year under report.

MANAGEMENT :

The Department has been active in its own distinct way. Eminent scholars and Industrialists have been regularly invited as guest speakers in the various Conferences/Seminars organised by the Department. Research work on decision making, Human Resource Development, Value Engineering, Value & Human Resource Development, Leadership & Managerial Effectiveness and Materials Management are continuously updated befitting the latest technological requirements of the nation.

A Post-graduate course leading to M.Sc. in Information Science is proposed to be introduced from the next academic session.

INSTITUTE-INDUSTRY INTERACTION :

The Institute is one of first technical institutions in the country to have meaningful interaction with industry almost from its inception. A large number of projects have been undertaken in collaboration with both private and public sectors and several import substitutes have been developed and designed which have been passed on for commercial production to industrial units. With the encouraging response from the Government of India under the scheme "Institute-Industry Interaction", the Institute has established interaction with two leading organisations namely, Heavy Engineering Corporation (H.E.C.), Ranchi and Central Coalfields Ltd.(C.C.L.), Ranchi. Flexible Manufacturing System Design, Material handling and Flow of materials and automated gauging systems have been selected under the Research-interaction programme with H.E.C. while development of optical fibre communication system for underground mines, Documentation of spares and sub-systems, identification of indigenous equivalent hydraulic equipment for replacement in imported-drills/showels and development of test rigs for repaired hydraulic motors have been under progress in the research-interaction programme with C.C.L.

GOVERNMENT OF INDIA SUPPORT UNDER NEW PLAN SCHEMES :

During the year 1991-92, the Government of India, Ministry of Human Resource Development has provided financial support for the Development of the following Laboratories/ Programmes :

- 1) Industry-Institute Interaction
- 2) Fuel Efficient I.C. Engines
- 3) Optical Communication & Fibre Optics
- 4) Microprocessor Applications
- 5) Energy Engineering
- 6) National Technical Manpower Information Systems.

NEW COURSES :

For the next session the Institute has finalised proposals regarding the following courses and these have been submitted to the U.G.C. and the Government of India for approval of the appropriate bodies:

I. Under-graduate Courses:

- 1) B.Tech. (Architecture)
- 2) B.Tech. (Chemical Engg. with specialization in Polymer)

II. Post-graduate Courses:

- 1) M.Tech. (Bio-technology)
- 2) M.Sc. (Applied Physics)
- 3) M.Sc. (Applied Chemistry)
- 4) M.Sc. (Applied Mathematics)
- 5) M.Sc. (Electronics) - only for girl students
- 6) M.Sc. (Information Science)

PARTICIPATION OF FACULTY IN NATIONAL AND
INTERNATIONAL CONFERENCES/SEMINARS

1991-92

1. S.K. Ghorai, Assistant Professor, Deptt. of Electronics & Comm. Engg. participated in 'National Symposium on Photonics and Integrated Optics SPIO-I' held at SAMEER, Bombay from April 16-18, 1992.
2. S. Varma, Associate Lecturer, Department of Electronics & Comm. Engg., participated in the following Conferences:
 - (i) 'International Conference organised by International Association for Advancement of Modelling and Simulation Technique in Enterprises' held at Geneva from June 12-19, 1992.
 - (ii) 'International Conference organised by IISC Bangalore on Engineering Optoelectronics Technologies' held at Bangalore from Dec. 16-18, 1991.
 - (iii) 'International Conference on Opto Electronics devices and Circuits sponsored by SPIE USA' held at MIT Boston from Sept. 2-7, 1991.
3. L. Sahoo, Associate Professor, Deptt. of Computer Science, participated in 'DBMS and AI Programme at IIT, Kharagpur in June 1992.
4. R.C. Tripathy, Assistant Professor, Deptt. of Computer Science, participated in 'DBMS and AI Programme at IIT, Kharagpur in June 1992.
5. P.K. Mahanti, Professor, Deptt. of Computer Science, participated in 'International Conference on Modelling & Simulation' held at IIT, Delhi from Dec. 9-11, 1991.
6. R.D. Bajpai, Associate Lecturer, Deptt. of Computer Science, participated in 'International Conference on Modelling & Simulation' at IIT, Delhi from Dec. 9-11, 1991.

7. V.B.Chandrasekhara Rao, Assistant Professor, Deptt.of Civil Engg., participated in 'ISTE Analysis & Design of Structure for Wind Loads Programme' at IIT, Delhi from 29.5.91 to 8.6.1991. He also participated at the programme on 'Finite Element Methods in Geotechnical Engineering' at D.D.I.T. Nadiad, Gujrat from 23.12.91 to 4.1.1992.
8. Gopal Pathak, Associate Professor, Deptt. of Civil Engg., participated and presented the following Papers at the International Conference - "FUTURE SAFE 92" held at Adelaide, Australia from May 24-27, 1992:
 - (i) Pneumoconiosis - a series threat to Mining Community.
 - (ii) Small & Micro Hydel Power Plants to the Sexcue.
 - (iii) CFC's and Ozone Layer depletion : Effects and Alternative (Indian perspective).
9. B.K. Singh, Assistant Professor, Deptt. of Production Engg., participated in the 'Summer School on Product Design and Analysis' held at B.V.M. Ballabh Vidyanagar, Anand (Gujrat) in June 1991 and also at the 'National Conference on Biomechanics' held at Calcutta from Sept. 5-6, 1991.
10. S.C. Mishra, Assistant Professor, Deptt. of Management, participated in the following Conferences:
 - (i) 'Globalisation of Indian Business' held at SAIL, Ranchi on 23.2.1992.
 - (ii) 'Office Automation & Expert Systems' at Thiagrajar College of Engineering, Madurai from June 3-16, 1992.
11. M.K. Nanda, Research Associate, Deptt. of Physics, participated in the 2nd S.E.R.C.(Science & Engg. Research Council) School in Plasma Physics at IIT, Delhi from May 11-29, 1992.

The following Faculty members of the Deptt. of Pharmaceutical Sciences, participated in the 'International Pharmaceutical Congress' held at Goa in Dec. 1991; the Papers presented by them at the Conference are also mentioned below:

12. B.N. Sinha, Assistant Professor, presented paper entitled: 'Phytopharmacological Studies on Corallocarpus Epigaens'.
13. S. Jha and N.K. Singh presented paper entitled : 'Pharmacognostical Studies of Leaves of Solanum Surattense Burm'.
14. S. Jha, N.K. Singh and A.K. Sharma presented paper entitled : 'Pharmacology of Desmodium Gangeticum DC'.
15. S. Jha and N.K. Singh presented paper entitled : 'Pharmacognosy and Pharmacology of Uraria picta Des'.
16. P.R.P. Varma, Assistant Professor, presented papers entitled :
 - (i) Comparative bioavailability
 - (ii) Physical and Chemical Evaluation of Lauha Bhasma.
17. S.P. Basu, D. Sasmal and N.G. Kekde presented paper entitled: 'Synthesis of Pongamol analogues (Part III)'.
18. B.K. Razdan and D. Sasmal presented paper entitled: 'Studies on some Pyrazoline Analogs'.
19. G.M. Panpalia and A.K. Tiwary presented papers entitled:
 - (i) 'Role of Crystal Habit in the Physical Stability of trimethoprim deflocculated suspensions'.
 - (ii) 'Influence of Crystal habit on pharmacokinetic Profile of trimethoprim deflocculated suspensions'.
20. G.M. Panpalia and U. Chaurasia presented paper entitled: 'Physicochemical properties of Commercial Vegetable Oils'.

The following Faculty members of the Departments of Pharmaceutical Sc. and Computer Sc., participated in the Conference organised by the 'Computer Society of India' (for Eastern Region) at Patna in April 1992; the Papers presented by them at the Conference are also mentioned below:

21. S. Samanta, Assistant Professor, presented paper entitled: 'Computerised Drug Inventory System'.
22. D. Sasmal and N.C. Mahanti presented papers entitled:
 - (i) 'Computerised Drug Information System - I'.
 - (ii) 'Computer Application in Health Management'.
23. U.N. Singh and Rita Sinha participated in XVII IASLIC Conference held at Kurukshetra on Dec. 26-30, 1991.

RESEARCH PAPERS & BOOKS PUBLISHED

A list of Research Papers and Books published by the Faculty of the Institute during the year 1991-92 is given below:

Civil Engineering

- (1) B.S. Rajeevolachanam, 'Mathematical Simulations of Ground Water Abstractions for a confined and an unconfined aquifers for pumping requirements' - Proceedings of Water and Environment, April 1992.
- (2) B.S. Rajeevolachanam, 'An extended Kryloft - Bogoliuboft theory for coupled non-linear differential equations with reference to translatory waves in Chhannels'- Proceedings of National Academy of Science (India).
- (3) B.S. Rajeevolachanam, 'Dynamic effect of curvilinear flow over a flip bucket spillway', ASCE (Hydraulic Journal).

Computer Engineering

- (1) P.K. Mahanti, 'Computational optimal solution for partial differential equation - a case study', presented at Int. Conf. Comp. Appl. Mech. Catholic University of Leuven, Belgium - published in Int. Journal of Appl. Maths., 1991.
- (2) P.K. Mahanti, 'Database retrieval algebra for feature terms extensions to datalog' - published in Proc. Int. Conf. on modelling and simulation, AMSE Press, Vol. 1 pp. 175-187, 1992.

Electronics & Communication Engineering

- (1) P. Chakrabarti, Comment on 'Optically controlled Characteristics in an Ion-Implanted Silicon MESFET', Solid-State Electronics, Vol. 34, p. 1185, 1991.
- (2) P. Chakrabarti, M. Puri, J. Pal and B.B. Pal, 'Computer aided modelling of a High-Electron-Mobility-Phototransistor', J.IETE, Special Issue (accepted for publication).

- (3) P. Chakrabarti and I. Venu Gopal, 'Charge-sheet model of a proposed MISFET photodetector', *Physica Status Solidi (a)* Vol. 128, pp. 521-530, 1991.
- (4) P. Chakrabarti, Comment on 'Effect of Radiation and Surface Recombination on the Characteristics of an Ion-Implanted GaAs MESFET', *IEEE Trans. Electron Devices*, Vol. 38, pp. 2578, 1991.
- (5) P. Chakrabarti and J. Pal, 'Optically controlled characteristics of a new heterojunction Field-Effect-Transistor', *Applied Physics A*. Vol. 54, pp.186-190,1992.
- (6) P. Chakrabarti and others, 'Effect of illumination on the capacitance of a proposed MIS Diode', *Physics Status Solidi (a)*, Vol. 128 pp. 513-520, 1991.
- (7) P. Chakrabarti and others, 'Effect of Illumination on the Capacitance of a dproposed hetero-MIS diode', *IEEE Trans. on Electron Devices* Vol. ED-39, pp. 507-541, 1992.
- (8) P. Chakrabarti and B. Umapathi, 'An optically controlled Double-Velocity-Avalanche-Transit-Time (DOVATT) diode', *Proc. Fifth Australian Symposium on Millimetre and submillimetre waves* (accepted for publication).
- (9) P. Chakrabarti and others, 'Numerical simulation for estimating C/V characteristics of MODFET under illumination', *Solid-State Electronics* Vol. 35, pp.225-227, 1992.
- (10) P. Chakrabarti and B.K. Mishra, 'Effect of illumination on the C-V characteristics of a new hetero-MIS capacitor', *Proc. of Fourth Asia-Pacific-Microwave-Conference* (accepted for publication).
- (11) P. Chakrabarti, R. Anand and V. Srinivas Rao, 'I-V Characteristics of an Optically controlled Si-MESFET', *Solid-State Electronics*, Vol. .35, pp. 587-592, 1992.

- (12) P. Chakrabarti and others, 'An improved model of and Ion-implanted GaAs OFFET', IEEE Transaction on Electron Devices (accepted for publication).
- (13) S.C. Goel, S.K. Ghorai, Vikram Bhatia and Sumit Joshi, 'Operation and Noise Performance of Interferometric Optical Fiber Temperature Sensor', Instruments and Electronics Development, Oct. 1991.
- (14) S. Varma, 'Saw Tooth phase shift Modulation Technique in Optical Degretion in FSK Modulation System paper presented in MIT Sponsored by SPIE, U.S.A.
- (15) S. Varma, 'Coherent Communication System' - Technical talk delivered at I.I.Sc.,Bangalore in Dec.1991 in the Conference of Engg. Optoelectronics Technologies.
- (16) S. Varma, 'Development of NIU (Network Interface Unit) for IAN Protecals', paper presented under CSIR Scheme in collaboratioin with INSA in June 1992 at Geneva.
- (17) S.K. Ghorai, S.C. Som and A. Satpathi, 'The finiteconjugate self-imaging and the generalized Lau effect due to complex gratings Application to visualization of the PRG in a BSO Crystal', Modern Optics England (accepted for publication).
- (18) M.K. Kowar, D.K. Pal and A.N. Daw, 'Improved model of silicon epitaxial growth by VPE', Int. Journal of Electronics (U.K.), Vol. 72, pp. 103, 1992.
- (19) M.K. Kowar, D.K. Pal and A.N. Daw, 'Modelling of Silicon epitaxy using silicon tetrachloride as the source', Microelectronics Journal, U.K. (accepted for publication).

Information Science

- (1) U.N. Singh and S. Arunachalam, 'High-tech physics in middle-level countries : A Scientometric analysis of holography literature', Journal of Scientific & Industrial Research, 50 (1991) 516-532.
- (2) U.N. Singh and S. Arunachalam, 'Access to information and the Scientific output of India', Journal of Scientific & Industrial Research, 51 (1992) 99-119.
- (3) U.N. Singh and S. Arunachalam, 'Profile of Laser research in middle-level countries : A Scientometric analysis of publication productivity and citation impact', paper presented at the 3rd International Conference of Informetrics, Bangalore, Aug. 9-12, 1991.
- (4) U.N. Singh, S. Arunachalam and Rita Sinha, 'The sleeping Dragon wakes up : Where do Chinese Scientists publish?' (accepted for publication in Dec 1992 issue of Science and Public Policy.
- (5) Rita Sinha, 'Quality of Scientific Journals'- A Report, Herald of Library Science, 31 (1-2), p. 133, 1992.

Management

- (1) A.N. Jha, 'Quality of Work-Life - Concept and Process', paper presented at XLV India Commerce Conference, Bangalore, in May, 1992.

Mathematics

- (1) R.C. Gupta, 'A General Rule for Differentiation', published in the Indian Journal of Mathematics Education, Vol. 11, No. 2 in July 1991, pp. 86-90.
- (2) R.C. Gupta, 'An Ancient Method of Pingala for Finding', published in Bona Mathematics, Vol. II, No. 3 in Sept. 1991, pp. 77-80.

- (3) R.C. Gupta, 'New Researches on Jaina Mathematics : The work of Prof. L.C. Jain', published in the Jinamanjari (Canada and USA) Vol. III, No.2, Oct. 1991, pp.88-94
- (4) R.C. Gupta, 'The Madhava-Geogory Series for $\tan^{-1}x$ ', published in the Indian Journal of Mathematics Education, Vol. II, No. 3 in Oct. 1991, pp. 107-110.
- (5) R.C. Gupta - published the following Articles in the Proceedings of Seminar, Meerut, 1991:
 - (a) Report on International Seminar on Jaina Mathematics and Cosmography, pp. 25-30.
 - (b) Article on the Jaina Value of Pi and its Transmission Abroad, pp. 117-120.
- (6) R.C. Gupta, 'Popularity of the Jaina Value $\pi = \sqrt{10}$ in China and Japan (in Hindi) published in the Arhat Vacana, Vol. 4 (1992) pp. 1-5.
- (7) R.C. Gupta, 'Mahaviracharya's Rule for the area of a Plane Polygon', published in Arhat Vacana, pp. 45-54.
- (8) R.C. Gupta, 'The Victory-stand theorem and its use', published in the Indian Journal of Mathematics Education (Delhi) Vol. 12, (1992) pp. 16-20.
- (9) R.C. Gupta, 'The First unenumerable Number in Jaina Mathematics', published in I.S.H.M., Delhi, pp. 22.
- (10) R.C. Gupta, 'Varahamihira's calculation of nCr and the discovery of Pascal's Triangle', published in I.S.H.M., Delhi, pp. 9.
- (11) R.C. Gupta, 'Abul Wafa and his India Rule about Regular Polygons, published in I.S.H.M., Delhi, pp. 8.
- (12) R.C. Gupta, 'On the Remainder Term in the Madhava-Gregory Series', published in I.S.H.M., Delhi, pp. 8.

Pharmaceutical Sciences

- (1) B.K. Razdan and P.K. Verma, 'Evaluation of Dosage Forms III : Studies on Commercial acetaminophen tablet dosage forms', Int. J. Pharmaceutics, 79, 83 (1992).
- (2) B.K. Razdan and A.R. Paradkar, 'Evaluation of Dosage Forms IV : Studies on Commercial phenylbutazone tablets' (communicated).

Production Engineering

- (1) K.P. Sinha, D. Sasmal and B.K. Singh, 'Industrial work Space design - a Review', 2nd National Conference on Biomechanics, Sept. 5-6, Calcutta.
- (2) K.P. Sinha, D. Sasmal and B.K. Singh, 'Work cycle design for higher productivity - a Study on bicycle Ergometer', 2nd National Conference on Biomechanics, Sept. 5-6, 1991, Calcutta.
- (3) A.K. Jha and Surender Kumar, 'Plane Strain Cold Forging of Sintered Copper Powder Strips', Journal of the Institution of Engineers (I), Mining & Material Science, Vol. 72, Sept. 1991, Calcutta.
- (4) R. Prasad and Surendra Kumar, 'An Investigation into the Ultrasonic Behaviour of Cast and Heat-treated Structures in Steel', British Journal of Non-Destructive Testing, Vol. 33, No. 10, Oct. 1991, Northampton, Britain.
- (5) R. Prasad and Surendra Kumar, 'An Investigation into the Ultrasonic Behaviour of Forged and Heat-Treated Structures of Steel', Journal of Non-Destructive Evaluation, Vol. 10, No. 4, Oct.-Dec. 1991, ISMDI, Madras.

Space_Engineering & Rocketry

- (1) N.L. Munjal, B.L. Gupta and Mohan Varma, 'Studies on UDMH-RFNA Gelled Propellants', Journal of Institution of Engineers (India), Vol. 71, 1991 pp. 25-31.
- (2) N.L. Munjal, B.L. Gupta and Mohan Varma, 'Theoretical Performance of Metallized Unsymmetrical Dimethyl Hydrazine - Red Fuming Nitric Acid System', Ind. J. of Tech., Vol. 30, 1992, pp. 234-244.
- (3) J.N. Mishra, R.P. Singh and B.S. Guggale, 'Stability Study of Strap-on-Mounted Rocket, Journal of Institution of Engineers, 1992 (in Press).
- (4) A.K. Shrivastava, R.K. Singh and V.N. Bubna, 'Experimental Studies on Elastic Buckling of Glass Epoxy Composite Plates', presented at AGM of Aeronautical Society of India held on Feb. 7-8, 1992.

RESEARCH PROJECTS

Work on the following Research Projects have been undertaken in the Institute during 1991-92 :

Civil Engineering

1. Failure of Chakradharpur Agriculture Market Metal Zone - a cronic case.
2. DG Set foundation at Chari, CCL.
3. Technical guidance for six numbers Mini hydel projects in Chhotanagpur region to BHPC under the financial support by World Bank.
4. (a) Geotechnical guidance to CPWD for various projects like -
 - (i) NIFFT building complex
 - (ii) CISF building complex at Tipudana
- (b) Geotechnical guidance to CCL for -
 - (i) Training & Administrative building complex including colony at Kanke
 - (ii) Swimming Pool at Australian Club at Piparwar
 - (iii) Central Workshop at Barkakana
- (c) Geotechnical guidance to Bihar State Bridge Corpn. in their various bridge construction like -
 - (i) Amnat Bridge, Daltanganj
- (d) Geotechnical guidance to Defence establishment like -
 - (i) Public Health Project at Dipatoli
 - (ii) Public Health Project at Namkum, Ranchi.

5. Towards the safety of mines which are at the bank of river Damodar require flood protection measures. The Department has completed the project at Gidi. The projects at Gobindpur, Punadih and Rohini are near completion.

Production Engineering

1. 'Erosion - Corrosion of low alloy steel'- SAIL(R&D)- to improve the life of Boilers, Heat Exchangers etc.

Pharmaceutical Science

Work on the following Projects sponsored by the U.G.C. is in progress :

1. 'Synthesis & Pharmacological Studies of Indan Analogs'.
2. 'Synthesis and Pharmacological Studies of Pseudo-pelletierine Analogs'.

SPACE Engineering & Rocketry

1. A study of Pressure Dependence of Burning Rate of HTPB-AP Composite Solid Propellants - Project sponsored by ISRO, Bangalore.
2. Experimental Studies on Elastic Buckling of Composite Plates - Project sponsored by AR+DB, New Delhi.
3. Development Studies on Gelled Monomethyl Hydrazine (MMH) Propellant - Project sponsored by ISRO, Bangalore.
4. Experimental Studies on Fatigue of Carbon Fibre Reinforced Composites under Adverse Environmental conditions - Project sponsored by AR&DB, New Delhi.

SCHOLARS REGISTERED FOR Ph.D.

During the year 1991-92 the following Scholars were registered for Ph.D. Programmes; the subject/areas of their study is stated against each :-

<u>Name of Scholars</u>	<u>Subject of Study</u>
1. Sri B. K. Mishra	Computer Aided Modelling of Solid-State Photodetector.
2. Sri Durgesh Pant	A complete study of Reconfigurable Computer Systems.
3. Sri Prasant Kr. Mukherjee	Quadratic Studs and Methods of Approximating them in Ancient and Medieval Mathematics.
4. Ms. Sandhya Rani	Study of some Chemical aspects of stress induced Magnetic & Electromagnetic Effects in Transition Metals and Intermetallic Compounds.
5. Sri Arun Kumar	Synthesis and Pharmacological studies of Indan Analogs.
6. Sri Ch. Subramanyam	Synthesis and study of Analogs of 6-Phenylpreudopelletierine

- | | |
|----------------------------|---|
| 7. Sri Rabindra Pd. Sharma | Modelling of the Combustion Process for a fuel Efficient four Stroke spark Ignition Engine. |
| 8. Sri Arbind Kumar | Investigation on Metal Hydrides as carrier to run the future vehicle engine on Hydrogen. |
| 9. Sri T. R. Ranganath | Studies on Honey Come Stabilised Saltless Solar Pond. |

Besides the above, the following scholars were registered for their Ph.D. in the previous year(s) are continuing their work under the guidance of the respective Doctoral Committees :

- | | |
|----------------------------|---|
| 1. Sri Mihir Kr. Nanda | Ultra short Laser Pulses and related Plasma Phenomena. |
| 2. Sri Amal Kishore Prasad | Dispersion Modelling of Particular and Toxic Metallic Emissions. |
| 3. Sri Tausif Monif | Formulation and Studies of some Transdermal Therapeutic Systems. |
| 4. Ms. Urmi Chaurasia | Influence of the Nature of internal phase on the Stability of o/w Emulsions through Zeta Potential. |

5. Sri U. S. Prasad Stress Induced Magnetic and E.M. Effects in Metals.
6. Sri Subhendu De Mathematical Model of Air Pollution problems due to stack Emissions.
7. Sri V. B. Chandrasekhara Influence of deep excavation on adjoining structures.
8. Sri Girish Pathak Tribological Investigations in Mechanical Processing.
9. Sri Y. B. Joshi Design of a Conceptual Database - on Information Science approach.
10. Ms. Maya Sen Gupta Non Linear Optimization for some Constrained Deterministic and Stochastic facility location problem through the development of Application Software.
11. Sri S. S. Mahli Pharmacological Studies on Purified Progamia seed oil, Karanjin, Pongamol and their Derivatives.
12. Sri U.K. Choubey Efficacy of working together in Coal Industry.
13. Sri I. I. Joseph Study for Higher Productivity in Coal Mining through Behavioural Approach.
14. Sri Atul Anand Flexible Automation for competitive Manufacturing.
15. Sri Bijay Kr. Singh Some Ergonomic considerations in work design.

- | | |
|--------------------------|--|
| 16. Sri Neeraj Pandey | Computer Modelling and simulation of flow in Petroleum reservoir |
| 17. Sri R. P. Singh | Study of Flow Behaviour in a cavity in an incompressible Flow. |
| 18. Sri R. K. Singh | Studies on Elastic Buckling of Composite Plates. |
| 19. Sri A. K. Thakur | High Temperature Oxidation and Erosion Behaviour of low Alloy Steels. |
| 20. Sri Pratik Biswas | Analysis of Elastic stability of some Anisotropic Bodies. |
| 21. Sri S. A. Chobe | Rocks and Hydro-geological condition of the area around Urimari and Bulkudra, District - Hazaribagh. |
| 22. Sri R. N. Thakur | Stability of O/W Emulsions through Zeta Potential. |
| 23. Sri Ashim Kumar Raha | Analysis of shape control in cold strip Rolling. |

STUDENT ACTIVITIES

During the year 1991-92, the students were given ample encouragement for participating in co-curriculars extracurricular activities. Currently, there are more than twenty flourishing Student-Forums and Societies apart from the Athletics and Games. These societies cater to the widest possible range of extra-curricular activities for an allround development of the students personality.

Dramatic Society : The 'Stage' has been a proven and vital medium of expression. Dramatics Society provided to the students an opportunity to present serious theatre and play on one hand and a touch of humour and satire through monoact mimicry and skit.

Music Club : Provided a platform for development of musical talents in a large number of interested students in the areas of Indian Classical Music, Western Music and light Indian Music. It also provided opportunities to students for organising popular musical nites on the Campus during the cultural festivals. Students are also encouraged to participate in inter-language choirs so as to create feelings of national integration amongst the students.

Unesco Club: Under the auspicious of the Unesco Club the students participated in serious debates and quizzing. Interesting events like 'Just-a-minute' 'block and tackle' etc. were also organised by the club.

The Bhartiya Sahitya Parishad: is a forum for promoting cultural activities in the national language: the Parishad organised Kavi Sammelans, Mushaira, Folk dances, Creative writing and publications contests.

Photographic society: Expression and creativity through synthesis of ideas and color through a Camera or a canvas is an accepted truth and enjoyable pastime. Photographic Society provided ample opportunity to students interested in Camera or Darkroom/studio work. During the year the Society had over 200 members. There are a number of Dark-rooms with full facility for development and Printing of films in the Institute, and also in the residential Halls.

The Fine Arts Society: Looked after the generation of skills in using pencil, pastel, water and oil colors paints as well as sculpture and handicrafts. On the occasion of the Republic Day an on-the-spot competition was held by the society in which over 200 young artists including Campus children took part.

Bitian's Nature Club: An affiliate of the World Wide Fund for Nature has encouraged students participation to know and love, respond to and vibrate with the Nature in all the immensity and totality.

The Highlander's Adventure Club: Which is an affiliate of NAF and NTMC provided ample opportunity for the participants to derive delight from adventure-hitch-hiking, cycle expeditions, rock climbing or mountaineering at no or very low cost.

Spic-Macay: The society for the promotion of Indian Classical Music and Culture amongst Youth had its fair share of activities by inviting famous exponents of Indian Classical Music and Dance. During the year, among others, the following distinguished Artists gave their demonstration and performance in the Institute:

1. Smt. and Sri Raja Reddy (Kuchapudi Dance)
2. Sri Vuḍḍha Dev Das Gupta (Sarod Vadan)
3. Pandit C.R. Vyas (Vocal Music)

The Audio Visual Education Club: While presenting recent and classic films every weekend for entertainment and relaxation of the students the Club also provided a number of technical and educational films and documentaries. The Club is very popular amongst all the residents of the campus.

Pooja Committee: Looked after the celebration of 'Saraswati Pooja' and 'Vishwakarma Pooja' to promote the religious sentiments of the students and staff.

The Engineering Society: In the technical and scientific arena, the Engineering Society promotes the interest of the students in the design, development and complete fabrication of working engineering models. The society organised a number of technical talks by eminent Scientists and Engineers.

It is note-worthy that the various Engg. faculties with their concentrated extra curricular efforts have been encouraging fraternity and identity, through the societies/Clubs in their respective areas e.g. Electrical and Communications Engineering Society, Computer Engineering Society, Civil Engineering Society and Pharmaceutical Society etc. The students' chapter of the Institution of Electrical and Electronics Engineers (India) are also engaged in a variety of technical persuits.

The Amateur Radio Society: has a membership of over hundred students; these students are able to reach out all-over the world through intricate communication network under the Radio-HAM Society.

The Indian Association of College Going Scientists: bubbles with activities including organisation Technical trips to industrial areas, Seminars, technical quizzes, apart from initiating astronomical observations.

The News and Publication Society: While providing an opportunity for news reporting, Journalism and creative writing contributed substantially, bringing out the latest news in the regular issues of "Campus Times", "Sports Times" and in quarterly issues of the BIT by BIT.

Other Voluntry Clubs: The BIT chapter of Leo Club and Rotract Club have a record of creditable performances. During the year 1991-92 they arranged a couple of Health Camps, Blood Donation Camps, with the support of the eminent Doctors of the town. Moreover, visits to rural areas for identification of their problems, adult education camps and such other social service activities were also organised by these Voluntry Clubs.

GAMES AND SPORTS

Since inception, the Institute has placed emphasis on Games and Sports. Earlier this activity was organised as a co-curricular programme but from 1984 the Games and Sports have been provided in the regular curriculum of the Under-graduate course by treating it as a full subject in the 1st and 2nd Semester of the B.E. and B.Pharm. Degree Programme. Accordingly, the students are exposed to PT & Drill, Gymnastics etc. thrice a week and on the other days they are required to play the allotted Games. Suitable arrangement for training and participation of girl students has also been made and their participation in P.T. & Games is compulsory. Now-a-days, on an average over 50 percent of the students take part in the Games, Sports and Athletics on a regular basis.

On behalf of the Association of Indian Universities, this year, the Institute organised the Inter-University Athletic Meet (Men & Women) 1991; this national event was held in the State of Bihar for the first time since inception of the Inter-University Athletic Meet. Twenty-five Universities participated in this Meet. The Institute received assistance from qualified sports officials of national and international level for conducting the meet which was conducted in a very graceful manner at Sports Complex of B.I.T., Mesra.

The Institute's team participated in this Athletic Meet and one of the Athletes, Sri Kanhaiya Lal could stand on victory stand levelling Bronz Medal in Pole-Vault event.

Tennis team of the Institute participated in North East Zone Inter University Tennis Tournament (M) 1991-92 organised at Punjab University, Chandigarh where it was placed in Third position.

Institute teams participated in Inter-University Volleyball and Basketball (East Zone B) Tournament 1991-92 organised at L.N. Mithila University, Darbhanga and Banaras Hindu University, Varanasi respectively.

N.S.S. :

Besides regular activities, this year Medicine was collected and sent to the Victims of Earth Quake in the Northern part of Uttar Pradesh.

THE STUDENTS' HALLS OF RESIDENCE

The Institute is completely residential and all the students are required to stay in one of the Hostels or Halls of Residence numbered serially - as Hostel 1 to 7. In addition there are two separate Hostels one for girls and the other for foreign students. With the assistance from the U.G.C. and the State Government, construction of one more Hostel for Girls is in progress.

All the hostels are laid out beautifully to match the serene and pleasant campus with flower beds, bushes and trees encompassing each hostels, besides the well maintained lawns in front. The architecture of the hostel includes central facilities like spacious Dining Halls in the Centre and Common Rooms and reading Rooms, placed symmetrically on both sides of the central entrance and wide varandahs all along the length with air gaps and balconies well set for common use.

Each student is accommodated in a single-seated room, furnished with a steel table and a steel chair. The girl students are kept in two-or-three furnished rooms. Each room is quite spacious with a big size window and a steel door oppositely placed to make the room airy. Each room has a cup-board, wardrobe and a wide and deep rack.

Each hostel has a Common Room, where Indoor Games are available. Each hostel has a Reading Room also - where sufficient number of Magazines, Periodicals and Newspapers by consensus are made available to the residents of the hostel. Provision of getting the old magazines and periodicals issued to students are available. Each hostel has also been provided with a Color Television Set.

Frequent competitions are organised among the inmates of the hostel in a number of indoor games. Inter-Hostel Tournaments in the indoor and outdoor games are a regular and very attractive feature of the hostel life.

Once in a year, the inmates organise a Hostel-Night, where in the improvised stage, well selected cultural and musical programme, games and special items based on intimate knowledge pack the evening with fun and exciting festive mood.

Each hostel has an independent Mess, completely managed by the students through Mess Committee members elected from among the residents themselves. The committee looks after the complete management including the Menu, preparation, purchases and billing under the supervision of the Superintendent/Assistant Superintendent of the hostel. The bills are made on 'no profit no loss' basis and the monthly bills of the residents are submitted in the Mess Accounts Office, where individual student pays accordingly. The menu and monthly bills of the various hostels are assessed and revised periodically in the Meeting of the Hostel Council.

NATIONAL CADET CORPS

A unit of the National Cadet Corps was set up in the Institute in 1957 for imparting technical as well as general training to the students. Initially, it functioned as an EME Sec. with a strength of 60 cadets. The seventies have been a period of serious student - unrest all over the State and consequently the NCC programme also suffered to a considerable extent. However, there was some revival in the early 'Eighties'. In order to encourage students' active participation in this programme in 1984 the Institute provided it in the regular curriculum with a weightage of '2 unit' equivalent to two courses of 100 marks each, in the 1st and 2nd Semester of the undergraduate B.E./B.Pharm. courses.

At present NCC unit is functioning as a full fledged Composite Technical Company of three different sections, viz. (i) Engineers Corps, (ii) EME Corps and (iii) Signal Corps, and its designation is "3 Bihar Comp. (Tech.) Coy., N.C.C., B.I.T., Mesra". It has a sanctioned strength of 200 Cadets.

The 3rd Bihar Comp. (Tech.) Coy of B.I.T., Mesra works under the command of a whole time Army Officer of the rank of Major or Lt. Colonel. In addition, it has on its staff two trained Part-time NCC Officers who are Professors of the Institute, five P.I. Staff from the Army, about 8-10 clerical and other supporting Staff who are provided by the State Govt. Beside an administrative building on the main Campus the NCC has adequate facilities like Parade Grounds, Firing Range and Armament Stores, Library, Staff quarters etc.

The training programme is designed to lay stress upon the technical aspects of training in the form of Engg. Projects duly supported by lectures and practical classes (6 period/week); the training for Engineers Corps mainly covers Field Work, Field defence, Military Bridges, Roads and Aerodromes; Water supply, Demolition etc. The Technical training of EME Corps covers Inspection and repairs of vehicles, Driving practice and maintenance, Acquisition with different components of Automobiles, Mechanism and elementary principles of different class of army vehicles; and for the Signal Corps it covers Wireless equipment operation, Line equipment, Line transmission theory, Acquisition with Morse's code and handling of telegraphic instruments etc.

Apart from the technical training the NCC also provides general training to all cadets in order to inculcate the leadership qualities, high morals, unity, discipline etc. The NCC has special arrangement for training of those cadets who appear for 'B' and 'C' Certificate exam. of NCC (Tech.).

During the year 1991-92, 152 cadets were enrolled in the NCC Coy of the Institute - 53 in the Engineers Corps, 50 EME Corps, and 49 in the Signal Corps.

TRAINING AND PLACEMENT

During the last 6 months of each academic session the Institute plays host to senior executives from a large number of organisations. They visit us to recruit technical and managerial personnel via interviews conducted on Campus of our outgoing B.E., MBA and MCA students. The visiting teams are mostly from the premier private companies, some Government organisations and the Defence Services. The visiting selection teams are invariably impressed by the facilities of the Institute, the environment and well-maintained surroundings, the general discipline and behaviour of the students and, most important, by their technical aptitude and talent. We are proud to state that the demand for our graduates has been steadily growing, along with the reputation of the Institute.

The Training & Placement Division liaises between the organisations that wish to visit us, the students who need jobs and the Departments and faculty concerned, to best achieve the aspiration of the students and the requirements of the organisations, also keeping the interest of the Institute in view. Apart from arranging Placement services, this division also encourages and tries to arrange industrial training for interested students during their vacations, with organisations all over the country. During the last 9 years, over 1300 graduates have received confirmed offers of appointment while still completing their studies. Other students have also benefited by their interview experiences on Campus and consequent gain of confidence to obtain jobs within a short time of graduating. Further, a few thousand have undertaken vacation training, thereby enhancing their technical awareness and increasing their prospects for employment.

We are happy to note that the placement activities have shown a continuously successful trend. This has been especially significant this year in view of the 'recession' in Indian Industry, as a result of which several organizations including some regular visitors initially indicated their plans to visit us for Campus Recruitment, but later regretted their plans to visit us for Campus Recruitment, but later regretted that they would not be coming, owing to various constraints.

During the last academic session, 1991-92, we were visited by about 34 premier organisations. By June 1992, most of these companies had intimated their final selections, offering about 190 appointments to graduates from different disciplines. About 20 students had received more than one offer. Some organisations were expected to finalise or increase their selections later, bringing the total number of appointments to at least 210.

Further, bio-datas of M.Pharm. and B.Pharm. students were also dispatched to a large number of companies in collaboration with the Department of Pharmaceutical Sciences. As a result, a large number of these students were subsequently called for interviews by these companies and several were selected. Bio-datas of some MBA and M.E. students were also similarly dispatched.

The placement activities do not end with the academic session. Students leaving the Campus without jobs are asked to leave their bio-datas, and these still being dispatched on requests to Organisations who have been contacting us after May. We have received confirmations of some job offers via this mode in recent weeks. We are also frequently consulted by students requiring advice and guidance in relevant matters.

During the year under report about 450 students received vacation training at various factories and establishments during the Puja vacations 1991 and Summer vacations in May & June, 1992.

The details of appointments offered to the outgoing students by the various Organisations during the year under report (upto June, 1992) and also the branch-wise number of appointments securing by the students is as follows:

	<u>DISCIPLINE/BRANCH</u>	<u>NUMBER OF JOBS</u>
B.E.	Mechanical Engineering	58
	Production Engineering	04
	Electrical & Electronics Engineering	46
	Electronics & Comm. Engineering	29
	Computer Science	31
	Civil Engineering	02
P.G.	M.E.	08
	M.C.A.	08
	M.B.A.	16
	D.C.A.	07
	M.Pharm.	06

Placement summary - 1991-92

<u>Sl.No.</u>	<u>Name of the Company</u>	<u>No. of Placement</u>	<u>Remarks</u>
1.	T.C.S., Calcutta	5	Only for M.E. students.
2.	TISCO, Jamshedpur	7	
3.	H.M.E.E.D., Madras		
4.	C.M.C., Calcutta	6	
5.	INTEC, Bombay	7	
6.	WIPRO INFOTECH, Calcutta	12	
7.	Hindustan Motors, Indore	5	

<u>SL.No.</u>	<u>Name of the Company</u>	<u>No. of placement</u>	<u>Remarks</u>
8.	L & T ECC, Madras	5	
9.	Escorts, Faridabad	13	
10.	Eicher, New Delhi	9	
11.	N.E.I., Jaipur	1	
12.	C.M.C., Calcutta	10	
13.	TELCO, Jamshedpur	7	
14.	INDAL, Muri	2	
15.	HCL - HP, Noida	5	
16.	Wipro Systems, Bangalore	7	
17.	Shalimar Paints, Calcutta	1	Only for MBA candidates
18.	Orient General Ind., Calcutta	1	For both MBA and BE
19.	Taylor Instruments, Delhi	1	
20.	Wartsila Diesel, Bombay	1	
21.	Indian Rayon, Bombay	12	
22.	Hindalco, Renukoot	3	
23.	Subhas Projects, Calcutta	6	
24.	T.R.F., Jamshedpur	6	
25.	Modi Xerox, Rampur (UP)	1	
26.	Tinplate Co., Jamshedpur	6	
27.	VXL, Saurashtra Chemicals	12	
28.	TISCO, Jamshedpur	6	(Second Visit)
29.	Tata Bearings, Kharagpur	5	
30.	Batliboi, Calcutta	2	
31.	Usha Martin, Ranchi	5	
32.	ADA Software, Calcutta	6	
33.	N.D.D.B., Calcutta	3	
34.	Tata Telecom, Gandhinagar	3	

RURAL HOUSING DEVELOPMENT CENTRE

The Rural Housing development Centre is housed in Civil Engineering Wing of the Institute has been performing various complex functions. An important and specific function being a live partner alongwith the State Government in improving housing and environmental conditions of the tribal people located in Chotanagpur Tribal belt by developing appropriate technologies, and propogating technology transfer through field demonstrations for the construction of low cost dwellings.

Considering that special attention is required to be given for the improvement of housing and environmental conditions in the tribal settlements, the Rural Housing Development Centre has initiated socio-economic studies and engineering surveys of tribal settlements in different parts of the state to identify the specific problems and suggest appropriate solutions.

The main objective of the Centre is to promote research in the improved use of local materials and construction techniques using locally available labour force. Further, motivate rural people to construct their houses by material developed by the Centre. The extension activities like workshop, 'on low cost housing technologies and training programme for the executive personnel of the State is widely acclaimed and attended. So far 380 officers of the rank of Deputy Development Commissioners, Executive Engineers, Assistant Engineers, Block Development Officers, Junior Engineers have been benefited by this programme.

With a view to promote better understanding of low cost constructional technology a number of research projects has been initiated and completed. A bird's eye view of activities of the Centre are:

Synergy - 92

A national level seminar on a topic 'Rural upliftment through Lowcost technologies' was organised under Regional Housing Development Centre for two days in March 1992. Mr. Venugopal, Director, MECON, delivered the key-note address. There were 60 papers on various topics from all over the country.

Projects undertaken during 1991-92 :

Project 1 : Causes of failure of rural lowcost housing schemes and their remedial measures.

Project 2 : An innovative lowcost technology for mass housing schemes of Chhotanagpur Plateau.

Consultancy offered in the construction of lowcost homes to the following agencies :

1. Government of Bihar
2. National Hydroelectric Corporation Koel Karo.
3. Slum dwellers Association, Dhanbad.

BOARD OF GOVERNORS

Chairman	: Shri G. P. Birla
Members:	
Nominee of the Government of India, Ministry of Human Resource Development	: Shri S. D. Awale
Nominee of the University Grants Commission	: Prof. S. K. Sen
Nominee of the All India Council for Technical Education:	Shri S. N. Chakraborti
Commissioner & Secretary Sc. & Tech., Govt. of Bihar	: Shri A. K. Mishra
Commissioner & Secretary Education, Govt. of Bihar	: Shri R. K. Srivastava
Commissioner, Chotanagpur Divn. (South), Bihar, Ranchi	: Shri M. K. Mandal
Nominee of the Chancellor	: Shri G. P. Lal
Nominee of the Hindustan Charity Trust	: Shri C. K. Birla
" "	: Shri A. L. Goenka
" "	: Shri K. P. Singhi
Director, BIT, Ranchi	: Dr. H. C. Pande
Member of Institute Faculty	: Dr. N. L. Munjal
" "	: Prof. V. C. S. Rao
Member selected by General Council	: Shri D. N. Patodia
" "	: Shri S. R. Jain
" "	: Shri C. S. Jha
Secretary : Registrar & OSD	: Shri J. B. Saksena

TECHNICAL COUNCIL

Chairman : Director, BIT, Ranchi	:	Dr. H. C. Pande
Members :		
Nominee of the Chancellor	:	Sri R. K. Sandhir
Director of Technical Education, Govt. of Bihar	:	Ex-Officio
Director of Higher Education Government of Bihar	:	Ex-Officio
Dean of Science, Ranchi University	:	Ex-Officio
Dean of Engineering Faculty Ranchi University	:	Ex-Officio
Professors of the Institute	:	Dr. B. Kanta Rao Prof. A. K. Aggarwal Prof. K. P. Sinha Dr. C. B. Mishra Prof. G.P.C. Rao Dr. B. K. Razdan Dr. J. N. Mishra Dr. N. L. Munjal Prof. K. C. Pande Dr. B. S. Sahay Prof. J. S. Ruhela Dr. R. C. Gupta Dr. S. Kumar Prof. R. A. Sharma Prof. S. H. Kekre Prof. S. C. Goel Prof. B.S.Rajeevalochanam Dr. R. K. Shrivastava Dr. Ashok Misra Prof. Awadh Prasad Dr. A. K. Chatterjee Dr. K. N. Sahu Dr. R. C. Prasad Dr. M. N. Banerjee Dr. B.B. Mishra Dr. B. G. Varshney Dr. P. K. Mahanti Dr. D. K. Mukherjee Dr. S. P. Basu Dr. J. Ram Dr. O. P. Sinha Prof. S. P. Bhatnagar Prof. B. P. Roy Dr. A. K. Sharma Dr. N. C. Mahanti

Persons appointed by the Chairman vide Clause 4(e) of the Regulations.	:	Prof. G. C. Singh Prof. M. K. Saxena Sri R. S. Yadav Dr. D. Jairath Sri Ram Pal Singh
Librarian - ex-officio	:	Sri U. N. Singh
Controller of Examinations - ex-officio	:	Dr. P. C. Joshi
Secretary : Registrar & OSD	:	Sri J. B. Saksena

FINANCE COMMITTEE

Chairman : Shri G. P. Birla

Members:

Nominee of the University Grant Commission	: Dr. L. S. Mehra
Nominee of the Chancellor	: Shri U. Narain
Nominee of the Board of Governors	: Shri A. L. Goenka
Nominee of General Council	: Shri P. C. Agarwal
Director, B.I.T., Ranchi	: Dr. H. C. Pande
Treasurer, B.I.T., Ranchi	: Sri S. S. Jajodia

Member-Secretary:

Registrar & OSD	: Shri J. B. Saksena
-----------------	----------------------

BUILDING & WORKS COMMITTEE

Chairman:

Director, B.I.T., Ranchi	: Dr. H. C. Pande
--------------------------	-------------------

Members:

Assistant Director(Pln. & Dev.)	: Prof. A. K. Agarwal
Assistant Director(Admn.)	: Prof. K. P. Sinha
Treasurer, B.I.T., Ranchi	: Shri S. S. Jajodia
Representative of the Architects:	M/s Kothari and Associates, Calcutta.
Representative of the State PWD	: Shri B. K. verma Supdtg.Engineer,PWD,Ranchi

Head.Dept. of Civil Engg. B.I.T., Mesra	: Prof. G. P. C. Rao
--	----------------------

Member-Secretary:

Registrar & OSD	: Shri J. B. Saksena
-----------------	----------------------

EXECUTIVES AND DEPARTMENTAL HEADS/INCHARGES

Director	- Dr. H. C. Pande
Treasurer	- Shri S. S. Jajodia
Registrar & OSD	- Shri J. B. Saksena

Assistant Directors :

(PG & Research) - Dr. B. Kanta Rao
(Planning & Dev) - Prof A.K. Agarwal
(Administration) - Prof. K. P. Sinha

Deans :

Curriculum Development - Dr. Ashok Misra
Students Activities - Prof. B.S. Rajeevalochnam
Chief Warden - Prof. A.P. Singh

Departmental Heads :

Civil Engg.	- Prof. G. P. C. Rao
Computer Science	- Dr. P. K. Mahanti
Electrical & Electronics Engg.	- Dr. B. Kanta Rao
Electronics & Comm. Engg.	- Prof. S. C. Goel
Mechanical Engg.	- Dr. C. B. Mishra
Production Engg.	- Prof. K. P. Sinha
Applied Chemistry	- Dr. M. N. Banerjee
Applied Mathematics	- Dr. B. B. Mishra
Applied Physics	- Prof. K. C. Pande
Management	- Prof. Awadh Prasad
Pharmaceutical Sc.	- Dr. B. K. Razdan
Space Engg & Rocketry-	Dr. N. L. Munjal

Incharges :

Research Cell (History of Science)	- Dr. R. C. Gupta
Finance	- Shri G. S. Chhaochharia
Entrance Exams.	- Prof. G. C. Singh
Trg. & Placement	- Dr. D. Jairath
Physical Edu & Sports-	Prof. R. S. Yadav
Library	- Shri U. N. Singh
Examinations	- Dr. P. C. Joshi
Nodal Centre	- Prof. M. K. Saxena
Medical	- Dr. A. P. Singh