ANNUAL REPORT

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During the year under review, namely 1986-87, we are proud to record that the Institute has attained a University status. This event is an occasion to briefly review its growth to academic excellence since its inception thirty two years ago.

The Institute was established as an All India Institute for imparting Technical education and Research in 1955 by the Hindusthan Charity Trust.

In pursuance of the recommendations of the Education Commission, India (1964-66) and on the basis of the report of a Joint Select 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 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 Institutes in Eastern India.

Courses and 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:
I. BACHELOR OF ENGINEERING:			
1. Civil	45	4 year course	1955
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
II. PHARMACEUTICAL SCIENCES:			
1. B. Pharmacy	25	4 year course	1972
2. M.Pharmacy in i) Pharmaceutical Chemistry ii) Pharmaceutics.	10	3 semester or 1½ years course.	1983
III. MASTER OF ENGINEERING:			
1. Civil Soil Mechanics, Structural & Foundation Engg.	12	3 semester or 1½ years course.	1965
2. M.C.A. Degree (Master of Computer Applications)	30	3 year course	1983

3.	Electrical (a) Control System & (b) Power System	12	3 semester or 1½ years course	1964
4.	Electronics & Communication (a) Instrumentation & Control (b) Microwave Engg.	12	-do-	1965
5.	Mechanical (a) Heat Power Engg.	6	-do-	1964
6.	Space Engg. & Rocketry (a) Rocket Propulsion & (b) Aerodymanics	10	-do-	1965

IV. MASTER OF BUSINESS ADMINISTRATION : 30 2 year course 1980

i) Marketing
ii) Personnel
iii) Industrial Management
iv) Finance and
v) Maintenance Management

V. CONTINUING EDUCATION - PART TIME POST-GRADUATE PROGRAMMES:

To enable Working Engineers to update their technologies, the part time post-graduate programme offers three 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 dociplines are :

1. Civil Engineering : Structural Design
2. Electrical Engineering : Control System and Power System
3. Management
4. Mechanical Engineering : Design of Mechanical Equipment

Enrollment :

There are 1562 students who have enrolled during the current Academic year. (1986-87). The branchwise enrollment is detailed below. Of these students, there are 129 Girl students, and 40 foreign students.

	Full time:	Part-time:	
B.E.	1090	-	
B. Pharm.	119	-	
M.C.A.	80	-	
M.B.A.	78	88	
M. Pharm.	22	-	
M.E.	46	39	
	1435	127	= 1562

Faculty & Staff:

Against the sanctioned strength of 173 Faculty positions, 145 are filled with 28 vacancies. The break-up is as follows :

Category:	Sanctioned strength:	In Position:	Vacancies:
Professors	47	32	15
Associate Professors	40	37	3
Lecturers/ Associate Lecturers	86	76	10
	173	145	28

The number of administrative and supporting staff are approximately 220. In addition, there are about 250 Class-IV staff to look after General Maintenance of electricity,

water supply, Gardens, Security, Hostels and allied services.

All academic staff are accommodated within the Campus About 60% of the administrative and other supporting staff are also accommodated.

Campus and Physical Facilities:

I. 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 accommodates 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 kilometre away.

For the convenience of Working Engineers to participate in Post-Graduate programmes a Technology Centre was established in Ranchi city at Lalpur.

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:

1. Institutional Buildings :	Sq. meters
i) Main building and Administrative Block.	3700
ii) Class room and Laboratories, Drawing Halls, Staff rooms etc.	9300
iii) Library Block	1360
iv) Space Engg. & Rocketry Block including explosives and Rocket Fuel centre	930
v) Workshop Sheds, General Stores, Garrage/Godowns etc.	3721
vi) Gymnasium	850

2. Others:	
i) Animal House	400
ii) NCC Block	400
iii) Primary/High School(temporarily housed in Mechanical Engg. Block)	744

III. Residential Complex :	
i) Staff quarters in different categories	453
ii) Residential Complex for supporting services; Forest Guards, Diary, Shop Keepers, Washermen etc.	60

IV. Hostels :	
i) Seven Boys' Hostels	1450 single rooms
ii) One Girls Hostel	60 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 delux double bed rooms to accommodate guests appropriately.

VI. Computer Systems :

To meet the needs of the growing scientific community, a DEC PDP 11/34 computer system was installed with multi-tasking capability supporting 8 terminals.

To be able to innovate and design computer based systems a Microprocessor development centre was established in 1982-83. This centre is equipped with HP 64000 development system with 20 Mb hard disk and printer, and a Tektronix multiuser logic development system. Both these systems support a variety of processors.

A dedicated computer facility was provided by the Ministry of Human Resource Development to maintain and analyse National Technical Manpower Information Systems under a nodal Centre here for the State of Bihar.

VII. Auditorium :

To meet the growing needs of the community for public functions an open air theatre is partly completed and can seat 2500.

VIII. 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/Athletics Cricket	- 1
2.	Foot-Ball 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 in-door court)
8.	Rifle Firing Range	- 1
9.	NCC Parade ground	- 1

IX. Canteen Services:

A moderately furnished canteen, provide snacks for students and staff..

X. 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.

XI. Marketing Centre:

A well run Co-operative Stores provide the daily requirements of the campus nearly 5,000 residents. Additional shoping complex is provided for sundry needs.

We hope to establish a full fledged marketing centre and Co-operative Book Store to meet the growing needs of the campus. The annual needs exceed 2 crore mark.

Out-turn of Graduates & Post-graduates :

During the year 1986-87, 315 students qualified for the award of under-graduate degree(B.E./B.Pharm.); 92 students for the Post-graduate degree (M.E., M.Pharm., M.B.A., and M.C.A.) and 1 student for Ph.D., the break-up is as follows :

	No.of students graduated in 1987		Total number of graduates upto 1987
I. Under-graduate Degree:			
1. B.E.(4 Year Degree course)			
Civil Engineering	46		
Computer Science	34		
Electrical & Electronics Engg.	49		
Electronics & Comm. Engg.	47		
Mechanical Engineering	94		
Production Engineering	16	286	6994
2. B.Pharm.(4 Year Degree Course)		29	233
II. Post-graduate Degree:			
1. M.E.			
Civil Engg.	2		
Electrical Engg.	3		
Mechanical Engg.	3		
Space Engg. & Rocketry	5	13	145

2. M.Pharm.	12	42
3. M.B.A.	66	230
4. M.C.A.	1	29
5. M.Sc.(Applied Science)		63

III. Doctoral Degree:

Ph.D./D.Sc.	1	28

Books & Periodicals:

The Library subscribes over 300 Indian and foreign journals annually. During the current year 1350 volumes were added to the existing stock of Library. Currently only ground floor is utilised, and to meet the growing needs, additional floors are being built.

Academic Innovations:

Since 1978 the Institute has embarked upon a bold programme of inter-disciplinary studies, incorporating new subjects such as System Analysis and Dynamics, Material Sciences, Direct Energy Conversion, Computed Aided Analysis Historical evolution of Science and Technology etc. with a view to yield a firm scientific basis for technical education. Further, the under-graduate and post-graduate programme involve the student on live projects indentified from surrounding industries. An integrated approach has been adopted such that research, dissemination and extension of knowledge go hand to hand. An inter-disciplinary Research and development is encouraged for optimum utilisation of manpower and resources.

Realising the significance of the historical and evolutionary aspects of Scientific development, a Research Cell for studies on 'History of Science' was established in 1979. This Cell has rich collection of books, journals and other materials for initiating investigation for research work. The Centre is duly recognised by the Indian National Science Academy for supervising and guiding research.

Basic and Applied Research:

The Research activity has been supported by the Post-graduate and Postdoctoral courses offered in almost all branches. Several papers, experimental models and prototypes have been developed as a result of (a) research in basic sciences (b) courses offered in applied sciences . (c) projects undertaken by engineering departments (d) special projects sanctioned by Government Departments in Pharmaceutical Sciences and (e) in 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 Technology. It has successfully developed

Several low cost building materials have been developed, of particular mention is fibre reinforced cement sheets, design and implementation of low cost housing designs, and improvement in rice husk cement.

In the area of Pharmaceutical Sciences extensive research in Aromatic and Medicinal Plants has been undertaken and several research facilities have been developed for isolating active principles as well as for the field trials of a variety of herbs and plants.

The Institute has also taken up in collaboration with the Bihar State Chemical & Pharmaceutical Corporation, a Drug development, testing and standardisation facility. Research efforts are being augmented to take up advanced studies in the following areas, for which specific project proposals were submitted to the Ministry of Human Resources Development.

1. Energy Engineering
2. Environmental Engineering
3. Water Resource Management
4. Robotics and Artificial Intelligence

5. Materials Science & Technology

6. Management Science in the area of

   - Small Scale Industries
   - Entrepreneurship

7. Recycling & Waste Utilisation

8. Fuel Efficient I.C. Engines

9. Solar Energy based Heating & Cooling Systems

10. Wind Energy Systems

11. Computer Integrated Manufacturing

12. Water Resource Development

13. Composite Materials

14. Off-shore structures

15. Management Education for Small Scale/Unrecognised Sector.