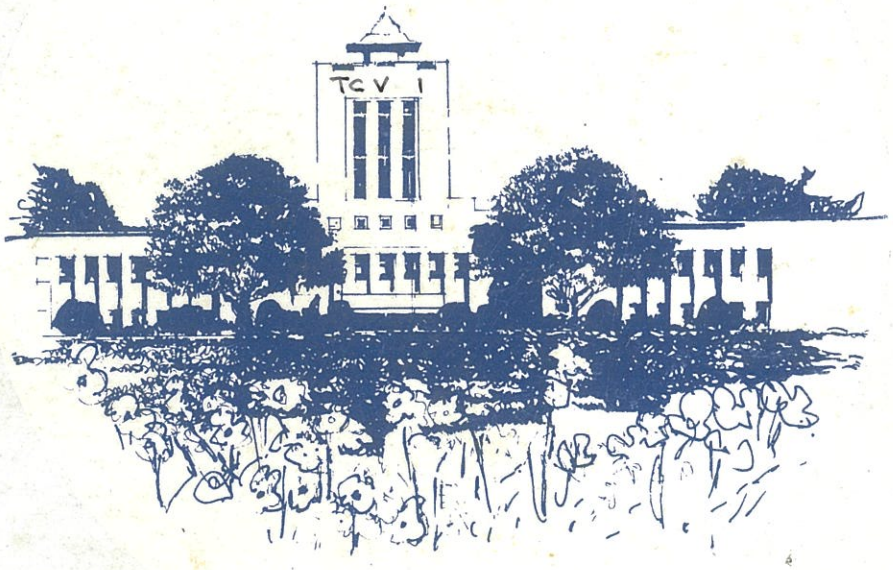
ANNUAL REPORT
1997-98



BIRLA INSTITUTE OF TECHNOLOGY
MESRA, RANCHI (INDIA)

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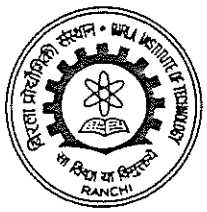

BIRLA INSTITUTE OF TECHNOLOGY
MESRA, RANCHI (INDIA)

CONTENTS

VICE-CHANCELLOR'S REPORT

Design, implementation and management of the most effective form of organizations has become the most important element in the present macro and micro economic perspective. The ability for an organization to remain alive and prosper in the present day world has, therefore, essentially become dependent on the extent of emphasis being put by the organization on the aspects of quality and cost of its operations, product and/or services, the two most significant characteristics of an "ideal" organization.

In response to these twin requirements of quality consciousness and cost effectiveness for any organization, the Birla Institute of Technology has tried to consolidate and expand its educational/instructional infrastructure in the field of Engineering, Technology, Applied Science and Management with the objective of producing high quality technical and managerial professionals capable of meeting the skill and expertise demand of present-day employers. It has continued its reliance on diversifying and augmenting the research and development infrastructure, updating and revising its syllabi, exploring new forms of Industry-Institute interactions, venturing in new domain of target oriented industrial research sponsored by different agencies including Government Departments and organizations and facilitating participation of faculties in programmes organized by professional bodies and similar Institutions to have more effective interaction with respective peer community

The Institute has taken steps for augmenting the infrastructure facilities available with the Department of Architecture and Polymer Engineering which at present run Undergraduate Degree programmes and also of the Department of Remote Sensing which at present runs the Post-Graduate programme. The University Grants Commission and the All India Council for Technical Education have approved funding for teaching staff and equipment for these departments.

The first batch of students has been admitted to the novel programme of B.Tech. for the holders of Diploma in Engineering at the Extension Centre of the Institute located at Allahabad. At present, the B.Tech. course is being organized in Mechanical, Electrical & Electronics and Civil Engineering disciplines. Its response has been extremely encouraging. The Extension Centre's infrastructure in tune with the first year's academic programmes has already been developed. It is also being planned to introduce

The Institute also plans to expand the activities in its Jaipur Extension Centre by allowing eligible candidates from the centre to get registered for the Ph.D. programme of the Institute, particularly in the discipline of Remote Sensing. The Institute is actively constructing a proposal of introducing MBA and MCA both in full-time and part-time modes at this extension centre.

Further, the Institute proposes to initiate MBA & MCA, both full-time and part-time at its Hyderabad Extension Centre. The Extension Centre at Noida, the most recent one, is also being planned to be utilized as a centre for imparting Post-graduate programmes in the areas of Business Administration, Computer Applications, Software Engineering and Interior Design.

The Institute has taken up negotiations with the UGC and the AICTE for according approval and accreditation of all new programmes of studies being planned at the different Extension Centres.

Bio-Technology is already identified to be one of the most potential and exciting domain for the ensuing millennium. The Birla Institute of Technology has been in constant touch with the appropriate agencies and departments of the Governments both at the Centre and the State so that suitable Post-graduate programmes could be initiated by the Institute as early as possible. It is heartening to report that some faculty members associated with the Department of Pharmaceutical Sciences have successfully carried out some interesting research work in the area of the Bio-Technology.

The University Grants Commission has approved the IXth Plan Development proposal as was submitted by the Institute. However, while acknowledging the contributions made by the Institute, the Commission authorities were constrained, due to the scarcity of funds availability, to sanction an assistance of Rs.129.00 lacs for the IXth Plan period and advised the Institute to approach separately for funds for the purpose of construction of an additional girls hostel and starting new Post-graduate programmes through which funds to the extent of Rs. 25.00 lacs can also be provided by them. The Chairperson of the UGC agreed to request the State Government to provide financial assistance to the Institute to enable it to take up all the elements which were proposed in the IXth Plan Development Document of the Institute, which cannot be realized by the amount of Rs. 129.00 lacs sanctioned by the U.G.C.

The departments of Space Engineering & Rocketry, Pharmaceutical Sciences, Electronics & Communication Engineering, Production Engineering, Electrical & Electronics Engineering, Civil Engineering, Mechanical Engineering and Computer Science, continued their progress in the fields of Research programmes, publishing research papers/reports and carried out innovative project work at both Under-graduate and Post-graduate levels.

The Plasma group of Applied Physics Department has successfully developed an Anodic Vapour Coating Unit for which patent application is under preparation.

The faculty and staff of Applied Chemistry, Applied Mathematics, and Management have also undertaken a number of research projects. Mrs. Alka Munjal, Asstt. Professor, Department of Management, has received "Young Teachers Career Award" Scheme from the AICTE.

The Science & Technology Entrepreneurs' Park has continued organizing training programmes on T.V. maintenance, specifically designed for the Adivasis and Scheduled Tribes. It has also organized programmes for prospective entrepreneurs and managers of small scale enterprises in the form of SIMAP (Small Industries Management Assistance Programme) and Entrepreneurship Development Programme.

The Institute continued its activities under the National Service Scheme programme of the Institute which, besides encouraging students to undertake Social Service, includes activities like adult literacy, organizing sports and cultural events for the children of the locality and also providing formal child educational facilities (equivalent to primary education) to the children from the locality who can not avail of the existing formal education option. The N.C.C., Sports & Cultural activities of the students continued under the stewardship of faculty members of the Institute.

The Institute's Placement activities have remained quite impressive despite the fact that the overall employment scenario at the national level has shown stagnation, if not a decline.

The general infrastructure and support facilities as have been existing in the campus, have been maintained upto the desired standards.

Despite observing austerity in general, the Institute has exercised all caution to see that such austerity never comes in the way of providing the best facilities to the students who come from all over the country and abroad to get education and training in different fields of Engineering, Technology, Applied Sciences and Management.

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 Selection Committee of the UGC and AUDIT, 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.

The achievements of the Institute, both in terms of research and excellent academic programme, led to its attaining the status of a deemed University under section 3 of the UGC Act in August 1986.

The Institute has constantly improved on its technical facilities as well as academic standards in order to keep pace with the fast changing technological scenario, thereby acquiring a pride of place amongst the Institutions offering technical education in the country.

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
I. Bachelor's Degree Courses			
1. Electrical & Electronics Engg.	45	4 years	1955
2. Mechanical Engg.	90	do	1955
3. Civil Engg.	60	do	1957
4. Electronics & Comm. Engg.	60	do	1964
5. Production Engg.	30	do	1964
6. Pharmacy	30	do	1972
7. Computer Science	30	do	1983
8. Architecture	40	5 years	1993
9. Polymer Engg.	30	4 years	1995
10. B.Sc. (Comp. Sc./Electronics)	30	3 years	1996

II. Master's Degree Courses

1. Electrical	12	1 1/2 years	1964
i. Control Systems			
ii. Power System			
2. Mechanical	6	do	1964
i. Heat Power Engg.			
3. Civil	2	do	1965
i. Soil Mechanics			
ii. Structural & Foundation Engg.			
4. Electronics & Communication	12	do	1965
i. Instrumentation			
ii. Microwave			
5. Space Engg. & Rocketry	10	do	1965
i. Rocket Propulsion			
ii. Aerodynamics			
6. Business Administration	30	2 years	1980
i. Marketing			
ii. Finance			
iii. Systems			
iv. Industrial Management			
7. Pharmacy	10	1 1/2 years	1983
i. Pharm. Chemistry			
ii. Pharmaceutics			
8. Computer Applications	30	3 years	1984
9. M.Sc. Bio-Medical Instrumentation	15	2 years	1992
10. M.Sc. Information Science	15	2 years	1993
11. M.Tech Remote Sensing	15	1 1/2 years	1996

III. P.G. Diploma Courses

1. Computer Applications	30	1 year	1988

IV. Continuing Education (Part-time) Post-Graduate Programme

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

1. A Certificate of Merit after completing 5 units.
2. A Diploma after completing 10 units, and
3. A Degree after completing 15 units.

The Disciplines, Intake capacity and Duration are :

Course	Intake capacity	Duration of Course	Year of Introduction of the Course
1. M. E.	-	3 Yrs.	1974
Civil Engineering			
Electrical Engineering			
Mechanical Engineering			
Industrial Automation			
2. Management			
M.B.A.	30	3 Yrs	1980
3. Computer Applications			
M.C.A.	30	4 1/2 Yrs.	1984
D.C.A.	30	1 1/2 Yrs.	1988
4. M. Tech. Computer Sc.	30	2 1/2 Yrs.	1996

In addition to the above, a number of courses in other specialization have been planned.

V. Doctor of Philosophy

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

Extension Centres

In order to cater to the ever-increasing need for quality technical education, B.I.T. has, over the years, established several Extension Centres in major towns. Such centres existing in Calcutta, Jaipur, Hyderabad and Ranchi at present offer MCA, MBA, M.E., M. Tech., P.G. D.C.A., and B. Sc. (Comp. Sc.) courses.

In the year 1997-98 a new Extension Centre was established at Naini, Allahabad. This centre offers B. Tech. Course in Civil, Electrical & Electronics and Mechanical Engg. for working Diploma Engineers on a Part-time basis. The course structure has been designed to suit the requirements of the working diploma engineers and to equip them with knowledge of the modern computer aided technological tools.

The centre has fulfilled the long standing demand for an institution in the region offering such courses and is likely to introduce several other programmes in the near future.

Another extension Centre at NOIDA, as a centre for imparting Post-graduate programmes in the areas of Business Administration, Computer Application, Software Engineering and Interior Design, is in the planning stage, likely to be started in the coming year.

ADMINISTRATION

B. I. T., Mesra 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, Government of India, the University Grants Commission, the State Government, the Chancellor, the All India Council for Technical Education, the Trust and the Institute Faculty. Shri 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 approves the curriculum, courses and the examination results. It appoints committees 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 Vice-Chancellor 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. Similarly, the Building & Works Committee advises the Institute in matters relating to building works activity. The constitution of the Finance Committee and Building & Works Committee is given in Annexure - III.

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

ENROLMENT

There are 1947 students who have been enrolled during the current Academic year 1997-98. The branch-wise enrolment is detailed below. Of these there are 292 girl students and 63 foreign students :

Course	Full-time	Part-time	
B.E.	1218	-	
B. Arch.	87		
B. Pharm.	107		
B.Sc. (Computer Sc. / Electronics)	84		
MBA	63	60	
MCA	95	48	
DCA	31	30	
M. Pharm.	9		
M.E./M.Tech.	30	36	
Bio Medical Instrumentation	25		
Information Science	24		
	1773	174	
Total			1947

FACULTY & STAFF

Against the sanctioned strength of 213 Faculty positions, 142 are filled with 71 vacancies. The break-up is as follows :

Category	Sanctioned	In Strength	Vacancies
Professors	57	47	10
Associate Professor	62	31	31
Asstt.. Prof./Lecturers/ Associate Lecturers	94	64	30
Total :	213	142	71

The number of administrative and supporting staff is 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. Under the Welfare Programme for the weaker sections of society specially from villages adjoining the Institute Campus, the Institute has engaged about 100 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 accommodates the various research and training laboratories, administrative offices and 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.

Institute Building		Sq. mtrs.
i.	Main building & Administrative block	3700
ii.	Class room & 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, Garage/Godown	3721
vi.	Gymnasium	850
vii.	Animal House	400

Residential Complex		
i.	Staff quarters in different categories	300 Nos.
ii.	Residential Complex for supporting services : Forest Guards, Dairy, Shop Keepers, Washermen etc.	70 Nos.

Hostel Accomodation		
i.	Seven Boy's Hostels	1410 Rooms (single)
ii.	Two Girls' Hostel	140 Rooms
iii.	One Foreign Students' Hostel	100 Rooms (single)

Guest Accomodation

The Institute maintains three Guest Houses. Two General purpose Guest Houses with 38 furnished rooms and a VIP Guest house with 3 deluxe double bed-rooms to accommodate guests appropriately.

Auditorium

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

There is also a Mini-Auditorium with seating capacity of 450 in the main Administrative Block.

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 :

i. Field Tracks for Sports/Athletics - 1

ii. Cricket ground - 1

iii.	Football grounds	- 2
iv.	Hockey grounds	- 2
v.	Basket Ball grounds	- 4
vi.	Volley Ball grounds	- 6
vii.	Tennis Courts	- 6
viii.	Badminton Courts (One Indoor and 5 Outdoor)	- 6

Canteen Services

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

Dispensary-cum-Health Unit

An eight-bed hospital provide the medical facilities to the large campus community mainly as an outdoor patient unit. This unit is supported by three full time and one part-time doctors and other para medical staff. Excellent rapport exists for acute medical needs with the Government Medical College & Hospital at Ranchi.

Shopping Centre

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

The construction of a full-fledged Marketing Complex and Cooperative Book Store to meet the growing needs of the Campus is nearing completion. The annual commodities sold through these outlets of the Campus exceeds Rs. 2 crores mark in value.

Others		Sq. mtrs.
i.	Consumers' Co-operative Stores	375
ii.	N C C Block	400
	Rifle Firing Range	1 No.
	NCC Parade ground	1 No.
iii.	Primary/High School (temporarily housed in Mechanical Engg. Block)	744

CENTRAL FACILITIES

Computer Centre

The computer laboratory is equipped with six high end systems know to be qualified under the supper mini computer category. The details are described below :

- DEIL 5100 from Digital India with RISC CPU, R3000 and the floating point unit R 3010, with a clock speed of 20 MHz, it delivers a SPEC mark 1 of 14.9 and MIPS 2 of 19.4. The primary memory is 40 MB and disc capacity is 1.85 GB. It has 95 MB CTD and 32 terminals. The operating system is ULTRIX and supports C, Pascal, Cobol and FORTRAN compilers algorithm INGRESS RDBMS package.

- TUL U6000/65, a high end system from TATA UNISYS with two 80486 CPU's @50 MHz. It has 64 MB RAM and 1 MB external cache per CPU. Secondary storage is 4.05 GB in the form of SCSI Hard disc, 150 MB CTD and 1.2 MB FDD. There is also a 550 MB CD-ROM. The system has 47 terminals and runs on AT&T Unix with X Windows, Oracle and Scientific subroutines. The languages supported are C, Basic, Fortran 77, Pascal, C++ and Image Processing and vision softwares.

- DEC-Apha-600 has Alpha @ 175 MHz with 2.5 GB Hard disk, 600 MB CD-ROM, 500 MB CTD and 96 MB RAM. It runs on VMS operating system and has FORTRAN, PASCAL, C, C++ and COBOL compilers, GKS and PHIGS package installed as RDBMS. It is linked with two 8-port terminal server over DECNET.

- DEC-Alpha-3000 has Alpha @ 125 MHz with 2.5 GB hard disk, 600 MB CD-ROM, and 32 MB RAM. It runs on OSF operating system with FORTRAN, PASCAL, C, and COBOL compilers and GKS, phigs Open-3D, DXML and X-Windows are also installed in the system.

- DEL-Alpha-150 is EISA based Alpha @ 150 MHz machine with windows-NT operating system and 600 MB CD-ROM.

- SILICON GRAPHICS INDY R-4600 system for Image processing and multimedia presentation having processor MIPS R4600, 100 MHz MIPS rating 119, 32 MB RAM, 16 KB data & Instruction cache, video camera, microphone. Speakers, Mouse, 535 MB HDD, CD ROM, IRIX Operating system with C, C++, Pascal, Cobol compilers, Multimedia showcase.

- SUN ALTRA 140 workstation/64MB RAM/2GB HDD/ 17" color monitor/CD-ROM Drive/Microphone/Built in Ethernet/Solaris 2.5 operating system/Java workshop/C/C++/ Fortran Compilers installed in July, 1997.

- There are number of Dot Matrix Printers and a line printer with a printing speed of 600 lpm as a common facility to the above mentioned systems.

All these systems are networked on Ethernet with TCP/IP and NFS. Apart from the above there are 20 PC-AT 386/486 range of machines with SVGA, 4 MB or more RAM and 80 MB or more hard discs and an Wipro Pentium 90 MHz system.

The micro computer based software packages include the following :

Fox-Pro for Windows 3.1, MS Fortran, MS-Word 6.0, Windows 3.1, MS Visual Basic 1.0, Broland C++, Turbo Pascal 7.0.

There is also a 2 transputer based parallel processing workstation with parallel C, parallel Fortran and one Tektronix 4115B graphics workstation. Recently, Institute has started E-mail services for students and staff through Dartnet service provider. The department currently providing computing facilities for 120 students at a time in one slot and it kept open all 7 days from 8 a.m. to 9 p.m. for users.

Library

The Library subscribes over 130 Indian and foreign journals annually. During the current year more than 1600 Volumes were added to the existing stock of Library. The up-to-date stock of the library comprises of 63728 books 16395 back volumes. Facilities for microfilming, photocopying are being provided by the Library.

In addition to printed journals, the library also subscribes IEL (Full Text), Ei Compendex Plus, International Pharmaceutical Abstracts, Grants and Institute of Management International Database Plus on CDs to meet the users requirements. For the same, the Library is fully equipped with one CDNET, one server and 14 nodes, all connected in LAN and two Workstations attached with one laser printer for getting the full text out put of IEL.

CAD Laboratory

A Central CAD Laboratory has been established with Wipro 486 system with 820 MB memory space and Acermate 920 and 486/G with memory space of 1.2 GB with at least thirty terminals for the use of students. This laboratory has many modern software packages for the benefit of students. These packages include the Auto CAD release 12 (drafting package), DOS as well as Window version, MCAD, FEM, FLOW and 3D-Studio. The CAD Laboratory has compiler of Boroland C++, Turbo C etc., too. The computer terminals are connected through modern plotter (with different pens) and printer for getting hard copy.

The Acermate 920 is the latest workstation for the CAD/CAM user with the Intel Pentium processor, PCI-Local bus Mach 64 graphics, Fast serial ports and EPP, EP and is ideally suited as a server for CAD laboratory. The Acermate 486/G has a high performance processor, on board local bus graphics controller, pin and plug technology for modular expandability.

ACADEMIC INNOVATIONS RESEARCH & DEVELOPMENT

The various departments of the Institute have been actively engaged in developing research and training infrastructure in the frontier areas of Applied Sciences, Engineering & Technology. The focus of research and development has been on the emerging fields of inter-disciplinary research. The curriculae in Engineering, Pharmaceutical Science, Applied Science and Management disciplines have been revised and upgraded.

To keep pace with the demanding technical advances and future trends in industry, the Institute-Industry interaction has been encouraged. Several new programmes are in progress offering consultancy, testing facilities, trouble shooting and technology development.

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 of Education, Research and Training. The Microprocessor Development Centre has already established a rapport with SAIL, MECON, CMPDI, HEC, etc. 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. Further, the efforts are being made for commercial exploitation of various technologies developed at various Centres/ Departments.

Microprocessor Research Centre

The Microprocessor Research Centre has been expended to facilities application programming on fast 32-bit processors, namely :

68020 at 25 MHz programming and real time trigger with performance analysis.

IMST 414 Transputer system for 32-bit multiprocessor environment, emulation using PC-XT, to yield system throughput up to 10MIPS, using OCCAM language.

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 a state of art machine capable of expansion. The HP 9000 system is networked with two HP64000 Development stations to constitute the HP-Design Centre.

The Microprocessor Development Centre has provided technical assistance, consultancy and training to Research and Development Centre for Iron and Steel of the Steel Authority of India Limited (RDCIS-SAIL), Metallurgical Consultants Ltd. (MECON), Coal Mines Planning and Development Institute (CMPDIL) and Heavy Engineering Corporation (HEC) for design and development of instrumentation and control systems.

Robotics Laboratory

An updated intelligent Robotics laboratory consists of three robots :

An IEEE Hero Robot with 4 degrees of freedom capable of ultrasonic sensing, dynamic mobile object sensing, speech synthesis etc.

Rhino Robot XR-3 and XR-4 are five axis revolute coordinate robot arms with motor driven grippers.

A four wheeled Robot project on Mobile Transfer Vehicle is under progress in collaboration with MECON.

Plasma Engineering

Plasma Physics group guided by Dr. P. K. Barhai has developed a new plasma deposition technique for the deposition of metallic multi-layer coating using Anodic Vacuum Arc (AVA). AVA is a newly developed plasma deposition technique and has not been fully understood. In contrast to the conventional cathodic plasma deposition technique where the evaporated material is kept in the cathode. As the cathode spots, which is the major drawback in the case of cathodic deposition is controlled by proper geometry and configurations of the electrodes and shields in AVA it produces improved film properties with respect to compactness, homogeneity, adhesive strength, reflectivity, conductivity etc. Although, monolayer coating using AVA has been tried in ESSEN, Germany, multi layer surface coating with multi anode configuration has been developed for the first time and it has many promising academic and technological applications. Coatings with metals like Al and Cu have already been developed. AVA technology with multi electrode geometry is going to play a very important role in the area of surface and interfaces as surface and interface is an emerging area of condensed matter physics. Many technological developments are expected to result from the studies of surface and interfaces. The most distinctive character of AVA is that the film parameters like film thickness, adhesive strength etc. can be controlled independently.

In addition to he area of AVA deposition, work on the study of arc plasma characteristics of high power cascade plasma arc generator using Optical Emission Spectroscopy (OES), Electric Probes and Thermal Probes (Enthalpy Probe) are also in progress. We plan to use the data generated in the application thermal plasma in plasma processing like cutting, welding, tool hardening etc. and in testing of materials for high temperature applications.

The project entitled "Study of Arc Plasma Characteristics of a Cascaded Arc Plasma Generator" sponsored by DST, New Delhi has been completed. The report is ready for submission. The main objectives were to study the generator parameters like current voltage characteristics, electro-thermal efficiency, heat flux etc. and the plasma parameters like the electron temperature, electron density, ion temperature, ion density etc. using electric probes and optical emission spectroscopy.

Another project entitled "Metallic Multi-layer Surface Coating Using Anodic Vacuum Arc" sponsored by ISRO, Bangalore, is on going.

Debjani Basak, JRF under ISRO Project attended the National Symposium on Instrumentation (NSI-23) held at National Physical Laboratory, New Delhi and presented a paper entitled "Anodic Vacuum Arc Technique for Nano-Layer Deposition".

Flexible Manufacturing Automation Laboratory

Product and process development in a continuous process in any industry. Rapid advances in manufacturing technology with computer controlled processes and management information system, are reinforcing the recognition that specialized training on manufacturing is necessary for their potential to be realized. Realizing the need for an integrated programme on the development of Automation Technology, a Flexible Manufacturing Automation Laboratory has been set up in the Department of Production Engineering. Setting up of this laboratory is a step in the methodology of unmanned manufacturing. The laboratory is designed to carry out experiments on various aspects of automation as applied to Production Engineering field.

The equipment and machineries installed in the laboratory includes :

1. CNC Trainer Lathe (EMCO)
2. CNC Trainer Milling (EMCO). It has 0.1 micron resolution.
3. A complete FMC comprising of -
   a. TRIAC CNC Milling Machine
   b. ORAC CNC Trainer Lathe
   c. Conveying system with Conveyer
   d. Two MOVEMASTER Robot
   e. PC and PLC Control System for co-ordinating control actions of different elements (DENFD)
4. Co-ordinate Measuring Machine (CMM - KEMCO)
5. Flexible Machining Cell Comprising of :
   a. Machining Centre
   b. Linear movement continuous path Robot

Environmental Engineering Laboratory

With the increased awareness about environment it has become necessary to have a well equipped laboratory where the testing facilities for various environmental pollutants can be carried out with precision and speed. With this object in mind an Environmental Engineering Laboratory has been setup in the Department of Civil Engineering. The laboratory is well equipped with Scalar Analyzer which is microprocessor controlled and has capacity to test 37 parameters at a time. The data system can handle upto 16 channels simultaneously. All channels are displayed on CTR. The data system stores all the raw data for post-run manipulations, achieving, transfer and reformatting of reports. Curve generation in all channels is an added attraction.

The laboratory is being used for regular training to Under-graduate and Post-graduate students and also for carrying out consultancy work of various industries.

The Building Centre (Nirman or Nirmithi Kendra)

The Housing and Urban Development Corporation (HUDCO), Ministry of Urban Development, Govt. of India in collaboration with Department of Civil Engineering, Birla Institute of Technology, Mesra, Ranchi has established a Building Centre. The Building Centre's main objective is to carry technology to grass root level in the field of Construction Engineering. Further, the centre is striving for propagation, dissemination of appropriate and cost effective technologies for application in housing and building programmes. The centre has drawn up a future programme to give the right level of exposure on Organizational, Technological, Managerial, Financial aspects and logistic issues in helping entrepreneur to run such Centres in the right manner. The Centre is developing training module, manufacturing and marketing module, construction module an housing guidance and information module for the Chhotanagpur Area.

Department of Applied Chemistry

The department has been actively participating in academic programmes, consultancy and material testing work. New laboratory experiments are being introduced in the sessional routine.

The research work on Redox-System in coordinated manganese complexes is being carried out by Prof. B. D. Choubay. A sponsored research project on polymer degradation is well progressing under Dr. P.K. Srivastava as the Principal Investigator. Another sponsored project on high temperature plastics is also smoothly progressing under the supervision of Dr. P. K. Srivastava. Two research scholars are working under Dr. Srivastava for their Ph.D. programmes. Two more research scholars are to start their Ph. D. work under Dr (Mrs)Usha Jha.

Three major research proposals have been submitted U.G.C. for funding.

Further, the faculty members have takenup consultancy and testing work of water samples, fuel, metal purity, building materials etc. from various industrial, government and private organisations.

A research project entitled "High Temperature Plastics" was award by AICTE to Dr. P. K. Srivastava. Two research Scholars are working under Dr. P. K. Srivastava under the projects on Polymer Science.

Department of Applied Mathematics

Besides participating in undergraduate and post graduate programme of engineering and science disciplines the department is actively engaged in research work in various impressive and potentially explosive areas like Boundary layer theory Magnetohydrodynamics flows, Plasma Physics, Environment Pollution, Mathematical model-

ling Elasto-Plastic dynamics with special reference to Seismology and non-conventional forging of sintered metal power.

On going Projects of the department are as under :

In the area of Boundary Layer study a project entitled "Inverse Problems in boundary layers flows" was approved by the U.G.C. under Major Research Project Scheme of the commission under Dr. Satyajit Roy. In inverse problem the stream wise distribution of wall share is given while the pressure distribution is unknown. The investigation will have potential ability to compute separating and reattaching flows. The results are expected to contribute significant aid to computational fluid dynamics.

In Environmental studies the mathematical models have been developed to investigate the dispersion of air pollution in the atmosphere as well as on the ground. The meteorological and topographical parameters have been incorporated in the model by considering their empirical relations. Gaussian model has been considered and the results so far obtained are encouraging from practical point of view and are applied in consultancy job with MECON, Ranchi, yielding satisfactory results. The project is completed under Dr. N. C. Mohanty.

The following Projects have been completed :

"Setting up of facilities for manpower development and training in the field of composites" A sub-project under TIFAC's Technology project in Mission Mode on Advanced composites - Principal coordinator Dr. B.G. Varshney.

Formability of Sintered Preforms" submitted to D.S.T. Co-investigator Dr. S.C. Prasad.

Proposal for "M.Sc. Programme in Applied Statistics and Informatics," Submitted by the Department of U.G.C.

The following research projects are in the process of submission to U.G.C. :

Theoretical study of rotating viscous plasma in crossed fields (Principal investigator - Dr. C. Thakur)

Some problems in vibration of plates. An H' - Galerkin mixed finite element method for a strongly damped wave equation.
(Principal investigator - Dr. R. K. Sinha)

Following B.E. Projects have been supervised :

Design of Helical Spring under Compressive Mechanical load - by Dr. S. C. Prasad.
Axi-symmetric vibration of non-uniform annular plates by Dr. S. K. Jain.

Department of Applied Mechanics

The Department of Applied Mechanics at B.I.T., Mesra, Ranchi is a specialized engineering department involved in teaching, research and industrial consultancy in the broad areas of Computer Aided Analysis and Competitive Product Design, Fluid Mechanics, Stress Analysis, Tribo-Technology, Reliability, Maintenance Engineering and Structural Dynamics. The department is in the process of developing specialized

laboratories devoted to these areas to a high degree of sophistication. It has also planned to run two postgraduate programmes namely M.E. (Computer Aided Analysis and Design), and M.E. (Tribology and Maintenance Engineering). The Ph. D. programme of the department offers research opportunities in the areas of manufacturing analysis, tribo-technology, competitive product design, fracture mechanics, material characterization and composite materials. The department has also been actively interacting with various industries and other technical institutes and research organizations. The department conducts courses for undergraduate and postgraduate students.

Besides the above, a number of pre-Ph.D. courses are taught by the faculty members of the department for the benefit of Ph.D. scholars.

The department is also in the process of setting up of following central facilities.
A computational facility having a reasonable number of networked workstations and pentium machines and an extensive array of software for engineering analysis and Competitive product design.

A tribology and maintenance engineering facility to evaluate failure of systems and components, refine maintenance procedures and improve availability of systems.
A biomechanics laboratory for the study of human body performance.

In house programmes for industries on these topics will also be conducted.

The Department has research and consultancy interests in the following areas :

* Engineering Tribology
* Bio Mechanics
* Manufacturing analysis
* Structural dynamics/Smart Structures
* Composite Materials
* Competitive Product Design.

Department of Applied Physics

The department of applied physics is well equipped to train students of undergraduate level. The laboratories and courses are continuously being upgraded to keep pace with new developments. Students of B.E. are encouraged to take projects in the field of laser technology and its applications specially in the field of Fiber optics, Fourier optics and optical computing.

To train students at post-graduate and research level, a set of advanced instruments viz. Mossbaur spectrometer, absorption spectrophotometer, He-Ne Laser, Three prism spectrograph, Arc generator, Anodic Vacuum are coating unit and glow discharge units are operative. These instruments are being used by the research scholars and faculty members for creating new knowledge and testing work. Atomic absorption spectrophotometer has been installed and commissioned in the newly developed air conditioned laboratory. In addition to other routine studies, this instrument is being

used for the study of pollution in the neighbouring areas. The department organized two seminars one on Cascaded are generator and another on remote sensing in the current session.

A DST sponsored project under SRPP programme entitled "Study of Arc Plasma Characteristics of a Cascaded Plasma Arc generator " has been completed on 31.03.98 Mainly, the study of the electrothermal efficiency, plasma characteristics and heat flux were made.

An ISRO sponsored project under RESPOND programme entitled "Metallic Multilayer Surface Coating Using Anodic Vacuum Arc" is in on -state.

Department of Architecture

The Department was established in the year 1993-94. The first batch of students, now in the final semester will graduate in June/July 1998. The curriculum, approved by AICTE is also recognized by the council of Architecture and the Indian Institute of Architects.

New faculty members have joined the department and some more will be joining shortly. The students of the department are taken for educational tours every year during which, besides studying historical places and buildings, they also do measured drawing of some buildings.

The aim of this department is to produce quality Architects who can meet global challenges of the coming century.

Central facilities available with the department are :

a. Computer centre - A well equipped computer laboratory.
b. Library - New books are being added constantly.
c. CAD laboratory - Latest software on Architecture for the benefit of students is made available in the Central CAD Lab.
d. Workshop & Structural Lab. are attached with Production & Civil Engg. Departments respectively

The department has made the following experimentations with positive results :

a. Interactive teaching
b. Goal oriented/task oriented teaching
c. Internal workshops.
d. Multiple small projects within class curriculum.
e. Career counselling session for senior students.
f. Intensive library session and book review.
g. Field interaction.

The students have participated in various architectural design competitions arranged by NASA (National Association of the Students of Architecture) at the Zonal and National level in recent years, competing with students from several other well known

schools of Architecture, and have won several first prizes with their latest achievements, in December 1997, being the third prize in the worldwide Design competition organized by the common wealth Association of Architects, England, out of 109 entries from all over the world.

In house consultancy is being provided to P & D Department for all its projects including on going Major projects like the Research & Development Building for which the Project Architect is Prof. Manjari Chakraborty.

The following Research Project Proposals have been submitted by Prof. Kalyan Mukherjee :

a. Development strategies of Ranchi and Hinterland - submitted to AICTE

b. Restructuring of the facade, Main Road, Ranchi - submitted to UGC

The following Seminars were organized in the Department during this year

"Industrial Architecture", presented by the chief Architect and the Deputy chief Architect of Bokaro Steel City.

"Latest Architectural Software Packages", presented by Mr. Avijit Sarkar from Jupitor Systems Software, Jamshedpur.

"Technical and Aesthetical aspects of Air-conditioning installation" presented by Mr. Mukherjee and Mr. Ghosh from Voltas Limited, Jamshedpur.

"Computer & Information Technology - Its role & relevance today", presented by Mr. K.K. Srivastava, C.M.P.D.I, Ranchi.

"Low cost techniques - its relevance in housing", presented by Ar. Partha Ranjan Das

Department of Bio-Medical Instrumentation

During past three decades most significant advances in Clinical practice have been attributed to the interaction between scientists, technologists and medical professionals. Biomedical Scientists have devised necessary tools to meet the challenges and this interdisciplinary field has evolved and grown to the point that it is now accepted as an established discipline. Modern diagnostics as well as therapy has become dependent upon the growth of technology. This is due to concurrent growth in physical and biological sciences.

Considering the need of scientists and technologists in this field a course in Biomedical Instrumentation leading to M.Sc.(BMI) was introduced in 1992. Since the course is interdisciplinary in nature the Department of Electrical & Electronics, Department of Electronics & Communication, Department of Pharmacy and B.M. Birla Heart Research Centre at Calcutta and a number of leading medical practitioners are participating in this degree program.

All the students who have graduated in this course are well placed in job positions. They are very well received by well known hospitals and Industries which are entering the growing field of Biomedical Instrumentation.

Department of Civil Engineering

The Department of Civil Engineering is one of the prime departments of the Institute. Besides running M.E.(F.T.), M.E.(P.T.) and Ph.D. programme, it offers consultancy in Structural, Soil Mechanics, Environmental, Water Resources engineering. In fact, the department has been recognized as one of the best centres for material testing in the field of construction and other allied fields.

It has a computer laboratory well equipped to cater to the needs of U.G. and P.G. students Ph.D. scholars also work in this lab. In order to further improve the academic standards and to make the students face up to the highly competitive job market, the courses were revised to include more of computer oriented subjects. This innovation has been done with great care so as not to sacrifice the traditional courses which are fundamental in nature in the making of a civil engineer.

Research is a continuation of class room activity to reinforce the creative ideas to further the development of the engineering acumen. The following major areas are presently active :

i. Development of two dimensional Hele shaw flow apparatus for creeping flow.
ii. Ground water-modelling mathematical and experimental.
    * Unsteady ground water flow and concentration distribution.
    * Rapidly varied flow and radial hydraulic jump.
    * Channel transition and critical depth meters.
    * Deep excavations
    * Battered piles.
    * Deflection in R.C.C. beams.
    * Cable stayed bridges.
    * Biaxial bending.
    * Optimization of Ambient air quality monitoring net works.

The students of the department organized Institution of Engineers student chapter meeting and were active throughout the year by conducting seminars and debates. The following visitors addressed to the students :

a. Dr. Arun Kumar of Royal Melbourne Institute of Technology, Melbourne, Australia.
b. Dr. P. K. Pande, Professor, Department of Civil Engineering, University of Roorkee, Roorkee.

The following Projects were undertaken in Collaboration with CMPDI :

* Utilization of overburden materials through modification of physico-mechanical properties for the construction of haul roads.

Total cost : 41.87 lacs
Duration : 3 years.

* Optimization of ambient air quality monitoring networks and application of mathematical models of air pollution control at North Karanpura Coal fields.
Total cost : 29.94 lacs
Duration : 3 years.

The Department has offered consultancy to the following departments :

* Geotechnical investigations for foundation designs of proposed bridges by BSF.
* Geotechnical investigations for foundation design of microhydel station by Pareek and Company at Netrahat.
* Design of a proposed Water tank at Bihar Sharif.
* Safety Analysis of DAV School building in Uttar Pradesh.
* Geological rock bore samples investigation for Tata Mines, Dhanbad.
* Design of proposed Water tank for Housing Board Colony at Ranchi.
* Mix designs for H.C.E., C.M.P.D.I., C.C.L., etc.
* Geotechnical investigations for various structures for south Eastern Railway.
* Sedimentation, reservoir model analysis for RITES.
* Soil investigations for Garrison Engineers, Ranchi, AGE, BR-1 Ranchi.

Department of Computer Science & Engineering

Ms. M. Bhattacharya, Assistant Professor of this department has been awarded a major Research Project from University Grant Commission, New Delhi to undertake a Modelling and simulation study of river flow forecasting for a period of 3 years.

The department organized a software contest 'INFINITUM' on April 5-6, 1998 in which at least 150 participants participated on various events. The Department would be organising an International Conference on Modelling and Simulation (MS-99) in association with the Association of Modelling and Simulation Enterprises, Lyon, France on Dec 1-3, 1999.

Desk Top Printing course will start at B.I.T.'s extension centre, Lalpur, Ranchi from June 1998 on a regular basis to impart training in the area of Desktop printing and publication.

Department of Electronics & Communication Engineering

Theoretical modelling and simulation of Solid State devices for high speed and optoelectronic applications have been an active area of research in the, department.

A number of novel solid state source detector structures for integrated optoelectronics have been introduced. These include Double-Hetrostructure InAs/InAs Sb light emitting diode for application in 2/um to 6/um wave length region, High Electron-mobility phototransistors and ION implanted optically controlled field effect transistors.

A number of laboratories in the department have either been upgraded or newly introduced. Some of these are :

a. Upgraded Optical Fibre Communication Laboratory where facilities like Monochromator, Video link, Data links, Wavelength Division. Multiplexers and Demultiplexers (0.5 mw x to 25 mw) and Optical powermeters have been added.

b. New laboratories for PCB Circuit Design and Testing and Digital Image processing and Voice Synthesis area have been added.

As a result of these newly acquired facilities, the department is able to introduce new courses in digital Image Processing, Speech Synthesis, Microelectronic Engineering, Mobile communication, Architecture, Data Communication, Bio-electronic Instrumentation both at under-graduate and postgraduate level. The Research Project entitled, "Development of Optical Fibre Communication System for Underground Mines" has been completed.

Research project in Optical Fibre gas Sensors particularly for monitoring CO2, NO2, and CH$ gas useful in environmental pollution monitoring is in progress.

Research and Development Laser Security Systems which have wide application in Defence is in progress.

Projects on Adaptive control of Flight System and efficient way of handling power factor lagging or leading loads with the help of thyristorised as controller have been initiated.

Research work is going on in Fibre Communication Area. Sensors are being developed for measurement of various parameters. Some work is going on in the area of Infrared Image System for multiuser application like railways and defence. Microprocessor based systems are being developed for various users. Continuous monitoring of physical measurands is various areas is being done using distributed and quasi distributed fiber optic sensors.

Intensive research work is going on both theoretically and experimentally for Optical image processing, holographic data storage, Optical inter connections and Laser beam steering using photorefractive crystals, and specially doped optical fibers. The relevant applications using photo polymers are also in progress.
The following seminars were arranged during 1997-98 for the benefit of students and faculty :

"Developments in Power System Protection" by Dr. P.B. Datta Gupta of I.I.T., Kharagpur (Aug. 2, 1997).

"Simulation of a Non-Linear Curve on a Digital Computer", by Dr. B.S. Sahay, Former Professor of Electrical Engg., B.I.T., Mesra (Oct. 3, 1997).

"Vector Control of 3-ph Induction Motor" by Mr. P.R. Thakura, B.I.T. Mesra (Oct. 25, 1997).

"Speed Control of Induction Using Neurofuzzy Controller by Dr. B.M. Karan, B.I.T. Mesra (Jan. 16, 1998).

"System Identification : Observation, Conjecture, Experiment, Modelling and Validation" by Dr. A.S.Chowdhuri, B.E. College, Howrah (March 17,1998).

Department of Electrical & Electronics Engineering

During the previous two years, the Department's first priority has been to improve and modernize its courses both at undergraduate and post-graduate levels in accordance with changes in technology. The revised course-structure of B.E. went through a full cycle in the year under report. Many courses like EHV Power Transmission, Modern Control Theory, Digital Signal Processing, Digital System Design, introduced initially as "Electives", were offered as common courses to the final-year students during 1997-98. Besides, courses on Industrial Drives and Control, Advanced Electrical Machines, Control System Components, Control System Design etc. were revised and updated. The Microprocessor and Artificial Intelligence Laboratories, in addition to offering facility to industrial projects are being utilized to consolidate corresponding courses, not only to P.G. students but also to the senior U.G. students of the department. The new post-graduate course in "Machine Learning Processes" introduced earlier to provide a base in Neural Networks and Fuzzy Logic areas is under review and revision. The software packages available in the Central CAD Laboratory of the Institute are being used by the final-year students of the department and will be exploited to their full potential in the coming years.

Three out of four M.E. students of the department completed their 3rd semester dissertation on time i.e. by January 31, 1998 and their viva-voice examination were held on March 16, 1998. They have now joined the TCS. In order that the students should get exposed to industrial environment at the earliest opportunity, the three girl students of M.E. in Control-systems stream, were encouraged to take up the topics relevant to the needs of industries and to do their dissertation work outside B.I.T. It was a very satisfying experience for the enterprising girls.

An industrial visit to Tenughat Thermal Power Station for the final year students of the department was arranged successfully on Nov. 8, 1997.

During the year under report, testing and calibration work from a few nearby industries was undertaken and completed. The work of repair and rectification of defects in the "Mobile Winder" or ECL, Santoria is being actively looked into by Dr. B.M. Karan, Mr. S.P.Sharma and others. Consultancy, testing and software development work of Mobile Transfer Vehicle (MTV) in collaboration with MECON, Ranchi is going on. The software required has been developed and the modifications required in the hardware design have recommended to MECON.

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Department of Information Science

The department has acquired a very high place in the field of Information Science & Technology by imparting quality education and proper training to its students.

The following subject experts were invited to give seminars for the benefit of students and faculty members.

1. Prof. R K Raut, Head, Dept. of Library & Information Science Sambalpur University, Sambalpur, Orissa.
2. Prof. S K Sen, Dept. of Library & Information Science, Calcutta university, Calcutta.
3. Dr. S K Chakrabartee, Calcutta University, Calcutta
4. Dr. S K. Gan, National Sample Survey, Calcutta.

Department of Management

The Department conducted Non-Technical Non-Executives Correspondence course for MECON Employees organized during the period of 19th March to 8th May 1998. A session on Management Games was organized on 28th August, 1997. (

Workshop on "Selection Techniques organized by MECON, Ranchi was attended by the Management students on 15-17th April, 1998.

A Quiz competition was organized by M.I.T., Ranchi on 7th Feb., 1998 in which two MBA students won prizes. Papers of Final Semester MBA students were accepted for participation in the paper writing contest on "Implications for Human Resource in the Business Strategy for 21st Century" and "Re-Engineering Human resource : A futuristic Approach", organized by X.L.R.I., Jamshedpur,

A joint paper titled "South East Asian Currency Crisis : Implication for India, written by MBA final semester students accepted for presentation at INSIGHT 98 at XIM,

Bhubaneshwar. Another paper titled "The Genesis of SE Asian Currency Crisis and "Beating Media Clutter" written by MBA final semester students accepted for presentation at BITS PILANI.

The identified research activities to be undertaken by the department are :

a. Development of Industrial Marketing Systems in Small and Medium Scale Industries of South Bihar.
b. Corporate restructuring in the light of liberalization of new economic and industrial policy.
c. Infrastructural facilities identified for offering major specialization in system management in the new academic session.

The following seminars have been organized by the department during the session 1997-98.

"Issues Related to Advertising", 16th Sept. '97. Resource person - Mr. Anil Singh, Proprietor of Darling Advertising Agency, Ranchi.

"Merchant Banking and Emerging Trends in Money Market", 7th Nov. '97. Resource person - Mr. Manoj Kumar, DCO, UCO Bank.

"Emerging Trend of Corporate Taxation", 18th March '98. Resource person Mr. R. K. Garodia A leading practicing Chartered Accountant.

"Role of Assertivness", 28th March '98. Resource person - Mr. E. I. Ravindranath, G. M. HRD, Usha Martin Industries Ltd. Ranchi.

"An overview of working capital management and Emerging issues of Marketing under new Industrial policy", 22nd April '98. Resource person - Shri P. K. Chatterjee, Sr. Marketing Executive, MECON.

Department of Mechanical Engineering

The Department is actively working for upgradation, renovation and modernization of its laboratories and modernization of theory courses and inclusion of recent topics in its syllabi. Work is in progress to impart laboratory training through Computer softwares and the department has procured SDRC's 1-DEAS Software.

The Department is negotiating for in-house M.E. programme for working engineers of Hind Motors Calcutta.

A No. of thesis and project works on emerging topics have been completed by P. G. and U. G. students, for example, Pulse Refrigeration and its application, Design and development of N2engine, eco-friendly engines, Investigations on alternative sources of energy, CAD and CAMS etc.

Dr. M. N. Verma and Prof. B. N. Giri delivered expert lecture in the seminar on "Energy Management in Coal Sector" on Energy Conservation in I.C. engines" and Energy Conservation in Air-Conditioning" respectively at Indian School of Mines, Dhanbad.

Prof. K. P. Singh delivered an expert lecture in Hydraulic, Pneumatic and electrical Control System at Baba Saheb Nayak College of Engg. Pusad, Maharashtra.

Prof. Arvind Kumar presented a paper in National Seminar entitled "Energy for better tomorrow" at Nagpur.

Prof. A. P. Singh and Prof. Arvind Kumar delivered number of lectures in the Summer School at R. I. T. Jamshedpur on Non-Conventional Energy.

Prof. B. N. Giri and Prof. Arvind Kumar presented papers in the Seminar on Energy Conservation in coal sector at Indian Institute of Coal Management, Ranchi.

Prof. Arvind Kumar delivered a guest lecture on "Non-conventional Energy Sources and their utilization" at CRPF Training Centre, Jagannathpur, Ranchi.

Department of Pharmaceutical Sciences

Apart from conducting under-graduate and post-graduate programme, the department has varied research activity. The work on following projects sanctioned by the UGC and A.I.C.T.E. has already started :

a. "Isolation and Identification of Mycotoxins and Mycotoxin producing fungi in food and or agricultural products and their pharmacological studies" sanctioned to Dr. D. Sasmal and funded by U.G.C., New Delhi.

b. "An Alternate therapy of Kalazaar by herbo-mineral sources" sanctioned to Prof. N. K. Singh and funded by A.I.C.T.E., New Delhi.

Prof. Ramesh Chandra participated in a workshop on "Industrial Bio-Technology Equipment and Facility Design", held from January 8-24, 1998 at The Birla Institute of Scientific Research, Jaipur.

Department of Polymer Engineering

During the academic year the Department of Polymer Engineering was actively involved in the augmentation of the laboratory facilities required for the undergraduate course in B.E. The first batch of students was admitted for this course in the present session.

X-Ray Diffractometer, Miniflex, Rigaku, and Windsor ST-25 Injection moulding machines were installed. Against grants received from govt. of Bihar, Materials Testing Equipment, Rheocord 9000, HAAKE is being procured. The testing facilities would include Torque Rheometer, Extruder, Mixer and Capillary Rheometer. Other workshop facilities include Blowmoulding, Compression moulding and thermo forming. The workshop facility was availed of my undergraduate engineering student as a part of workshop practice.

Department of Production Engineering

An universal Fixture for the grinding of blunt cutting edges of drills has been designed and a working model prepared under guidance of Prof. B. N. Jha, which can grind drills of various sizes making the use of fixture cost effective.

The following are the areas of research and development interest of the faculty :

a. Work design and Ergonomics
b. Robotic work station design
c. Automation in Steel Industries
d. Simulation of FMS
e. Agile Manufacturing
f. Robotic Vision for automating production systems
g. Design and Manufacture of EDM
h. Tribological analysis

Industrial Tours were arranged to TELCO in September 1997 and TISCO in February 1998 for the students.

Prof. B. K. Singh, advisor IE(I) BIT Students chapter, Production Engg. Division has been elected as an Advisor at the National level of the Institution of Engineers (I) students chapter of the Engineering colleges and Polytechnics for the session 1997-98.

The Faculty of the Department has been in constant touch with local Industries and organisations for the solutions to their specific technical problems. Some of the current problems being tackled are :

a. Automation problems of steel Industries
b. Near Net shape processes
c. Technological upgradation
d. Feasibility study of JIT in Indian Manufacturing environment
e. Value Engineering Applications.

Some of the concerned organisations are Bokaro Steel Plant, RDCIS, CET, NIFFT, Rajrappa Coal Washery, Alcast, Perfect Forgings etc.

Prof. B. K. Singh has been elected life member of Institution of Engineers (India). Head of the Department of Production Engineering.

The following Seminars were organized for the benefits of the students of the Department :

24.2.98, "Improving Managerial Effectiveness", Dr. B. Kumar R.I.T., Jamshedpur

25.4.98, "Just In Time Techniques", Dr. A. K. Jha IT, BHU, Varanasi.

30.4.98, "Near Net Shape Processes", Dr. N. Shekhar Mishra R & D, SAIL, Ranchi.

5.5.98, "Life Assessment of Materials for High Temp. Applications", Dr. V. Sagar Dwivedi R & D, SAIL, Ranchi

Department of Remote Sensing

Looking at the growing significance and need of Remote Sensing (RS) and Geographic Information System (GIS), an one and a half year M. Tech. programme in Remote Sensing has been introduced from July 1997 at B.I.T., Mesra. To begin with ten students were admitted from the streams of engineering earth sciences, bio-

sciences, and few other basic sciences.

The faculty members of the department and M. Tech. students are actively engaged in Research work in various fundamental and applied areas like development of image processing and GIS module for hybrid Classifier for land cover types Artificial Neural Networks, Change Detection in the Forest area using multi-date RS data products, Soil Mapping, Morphometic Analysis of River Basin, Water Pollution analysis etc.

M. Tech students actively participated in the 'Saturday Seminars' organized under the auspices of the 'Departmental Remote Sensing Society'.

Department of Space Engineering & Rocketry

The department has established excellent infrastructure for imparting post graduate education and carrying out R&D work for post graduate curriculum, Ph.D. programmes and sponsored research and consultancy.

The research work carried out during the year 1997-98 in the areas of aerodynamics, composite materials, propellant technology, combustion and rocket propulsion, is summarized below :

Aerodynamics Division :

A Respond Project of ISRO : "Sonic Buffeting : Shock Wave-Boundary Layer Interaction" has been sanctioned. The project is aimed to obtain "Unsteady aerodynamic load" caused by several geometrical protrusions which are characteristic features of PSLV and GSLV. The experimental part of the work is being carried out on wind tunnel at flow Mach Nos. of 0.8, 1.2, 1.8 and 2.4. The work related to Mach number 2.4 has been carried out with the help of "Unsteady flow parameters measuring probe developed and validated by the Institute" for which patent application has already been filed.

Effect of Protuberance on an Axi-symmetric Cone-Cylinder Model in High Speed Flow: Mean surface static pressure and r.m.s. levels in surface static as well as wall total pressure have been obtained. The flow separation distance ahead and re-attachment distance behind the protuberances of parallelepiped, square wedge, tapered wedge and ogive shape have been obtained. The study shows highly unsteady pressure in front of parallelepiped, square wedge and ogive protrusions.

Aerodynamics Analysis - A Computer Aided Design :Design data and algorithms of Aerodynamics stability Derivatives of low speed aircraft, as given in USAF-DATCOM have been employed to obtain flight performance of an "Unmanned Aerial Target Aircraft at low speed low altitude".

Composite Material Section : The effect of environment on fatigue and microcrack growth in Carbon Fibre Reinforced Composites during flexural fatigue has been carried out at room temperature. The specimens are exposed to tap water, saline water, acidic solution, low temperature and slightly above room temperature for 500 hours prior to flexural tests.

Propellant & Rocket Propulsion Division :

Research on Eco-friendly Propellant System : An experimental investigation on thermal decomposition of ammonium nitrate (AN), which is now receiving a renewed attention as an eco-friendly oxidizer for composite rocket propellant applications, has been carried out at different pressures using Differentials Scanning Calorimetry technique, with a view to understand initial dissociation and degradation process during combustion. The role of promising burn rate modifiers on oxidizer decomposition has also been studied.

It is observed that ammonium nitrate decomposition remains an endothermic process upto a pressure of nearly 2.15 MPa and there after becomes exothermic in nature. The Peak temperatures corresponding to phase transitions, melting and decomposition are seen to register a positive shift with pressure. The catalysts like ammonium dichromate, copper chromite and ferrocenes are seen to influence condensed phase reactions significantly. The combustion characteristics of Hydroxy terminated polybutadience - ammonium nitrate system indicate that the presently accepted model of only oxidizer decomposition near the surface leading to development of a thermal layer in case of AN-based propellants needs to be revised as an extensively exothermic degradation of fuel binder is witnessed as -soon as the oxidizer melts. Attempts have been made to analyse the observed results-on HTPB-AN propellant decomposition at different pressures and an empirical relation is forwarded. The mode of catalytic action during propellant combustion has also been visualized based on the experimental observations. Finally, an effort has been directed towards finding a correlation between burn rate and decomposition behaviour of the propellant compositions. Ammonium dichromate has been found to be the most effective burn rate modifier which influences both the condensed phase and gas phase combustion behaviour of HTPB-AN propellants. The findings of this research are being utilized to develop suitable systems for low signature propulsion devices.

Development of High Energy Metallized Liquid Propellants :

A research and development project sponsored by Indian Space Research Organization under RESPOND scheme was successfully completed during this year. In this investigation, efforts were made to develop thixotropic gels of monomethyl hydrazine (MMH) liquid rocket fuel using several particulate and chemical gelling agents. The chemical gellants like hydroxypropyl methyl cellulose (HPMC), Methyl cellulose (MC) and synthetic gellants derived from polyacrylic acid (ASPA) have been found to be effective in bringing about gelation of MMH. The gelation process was studied and critical concentrations of gellants required for gellification of MMH were determined alongwith respective gelation times in each case. Effect of molecular weight of gellants on gelation process was also investigated.

The metallized gels of MMH were also prepared by incorporating low molecular weight metal powders like aluminium and magnesium. Aluminized systems-were selected for detailed gelation process study as aluminized gels deliver a higher performance in terms of specific Impulse. Effect of aluminium content on gelation time of MMH fuel using different grades of gellants and different particle sizes of aluminium metal was

also studied in detail. The storage behaviour of the virgin and metallized MMH gels was also observed. Keeping in view the results of the above mentioned studies, HPMC 100K was identified as the prospective gellant for detailed studies. The performance evaluation studies on MMH and its virgin and aluminized gels had been carried out using NASA-SP-273 program with N_2O_4 as Oxidant. The computation for calculating parameters like specific impulse, flame temperature, Mean molecular weight of the combustion products etc. had been performed at 70 ksc chamber pressure and a Pc/Pe ratio=70. The influence of extent of aluminization under wide range of oxidiser- fuel ratio on the above mentioned parameters had also been evaluated. The results show a significant gain in performance on metallization and reduction in oxidizer Requirement for heterogeneous fuel systems. An effort has also been made to study the ignition characteristics of virgin and metallized fuel systems using RFNA as oxidizer.

Studies on Performance Parameter Prediction of Aluminised HTPB Propellant with Tapered Port Configuration : The propellant characteristics have been evaluated by suitable ballistic evaluation motors, grain and proper nozzles. A mathematical model has been worked out for the evaluation of burning rate at different pressures. The principle of least square has been used to evaluate the pressure index 'n' and burning rate coefficient 'a' values.

For large-sized propellant grain having internal star geometry with tapered port area, a combustion model of the grain cross section at different section has been worked out. By referring these models, the formulae's for the instantaneous burning perimeter, port area and area of burning have been developed. A computer programme for evaluating instantaneous burning surface, port area, Clemons ratio, pressure developed, burning rate, time of burning, and thrust developed have been worked out. The theoretical pressure-time profile is generated by using the data of this computer program.

The pressure-time profile theoretically generated is superimposed on the pressure-time profile obtained by experimental firing.

The rocket test firing control room is being modernized ,with the financial support received from AICTE under MODROB programme. The automatic firing panel, data acquisition system and software for display and analysis of acquired performance results are in advanced stage of development in collaboration with High Energy Materials Research Laboratory, Pune. The new facility also has the provision of sound and visual display during firings.

Dr. J. N. Mishra, Professor, of this Department has been selected for "VIJAYSHRI AWARD AND CERTIFICATE OF EXCELLENCE" for his singular success in his own field by India International Friendship Society, New Delhi.

Birla Institute of Technology - Science & Technology Entrepreneurs' Park (B.I.T.-S.T.E.P.)

The Science & Technology Entrepreneurs' Park (STEP) programme was initiated by National Science & Technology Entrepreneurship Development Board (NSTEDB), Department of Science & Technology, Government of India in 1984 to provide a re-orientation in approach to innovation and entrepreneurship involving education, training, research, finance, management, and government. The objectives of STEPs are a. to forge a close linkage between Universities, Academic and R & D institutions on the one hand and industry on the other, b. to promote Entrepreneurship among Science & Technology persons, and c. to provide R & D support to the Small Scale Industry mostly through interaction with research institutions.

The pioneering work initiated and nurtured by the host Institute, Birla Institute of Technology, engaged in providing high quality education in the fields of engineering, pharmaceutical science, computer science, information science and management with highly qualified teaching staff and well developed laboratories and providing a highly congenial environment both for education and research, in the fields of Small Industries Research Training and Science & Technology Entrepreneur's promotion activities resulted into the formation of Small Industries Research Training and Development Organisation (SIRTDO). The existing climate as well as facilities for nurturing and developing S & T Entrepreneurs' - administrative, machinery, and equipment etc. came very handy to make the BIT-STEP functional since 1985-86.

A total of over fifty units could be launched since its inception, of which as many as thirtyone were given operating facilities from its adjoining Nursery Sheds. Sixteen of these have been doing very well, providing job opportunity to more than five hundred persons, and having a turnover of more than Rupees seven crores.

Besides conducting Entrepreneurship Awareness Camps (EACs), and Entrepreneurship Development Programmes (EDPs), it has also conducted variety of Skill Development Training programme under Mass Employment Generation through Science & Technology (MEGSAT), generating employment for more than 350 persons.

A SIDBI-sponsored 16-week Small Industries Management Assistants'Programme (SIMAP), aimed towards generating human resource for managerial assistance to the entrepreneurs in Small Scale Sector was conducted this year. Under the programme, started on 01 Dec 1997, thirty graduates in science, arts, commerce were effectively trained, of which some twelve have already got suitable employment in the Small Scale Industries.

Several programmes in diversified trades have been successfully conducted in past years to train rural youths as well as tribal youths towards vocational training, and training-cum-production programmes. Under one such Training-cum-Production (TCP) programme, twenty Adivasi Youth (Scheduled Tribe) is undergoing extensive one year T.V. Training Programme from 01 Aug 1997.

Selection of candidates is in final stage for yet another training programme in T.V. Repair for Paharia Tribe Youths.

PARTICIPATION OF FACULTY IN NATIONAL & INTERNATIONAL SEMINARS, CONFERENCES & WORKSHOPS

Department of Applied Mathematics

Dr. R. K. Sinha participated and presented a paper entitled "Finite Element Approximation with Quadrature to Hyperbolic equations" at the International Conferences on Function spaces and applications to Partial Differential Equations, held at University of Delhi from Dec. 15-19, 1997.

Dr. R. K. Sinha attended and gave a talk at the National Conference on Numerical Schemes on Qualitative properties of solutions of Differential Equations and wavelet Analysis held at Utkal University, Bhubaneshwar from Jan. 23-25, 1998.

Dr. R. K. Sinha participated and gave a talk on "Design and Simulation of Switchgear-An Industrial Case Study" at the International Conference on Recent Developments in Mathematical Analysis with Applications to Industrial problems held at the Department of Mathematics, Banaras Hindu University, Varanasi, India from March 2-5, 1998.

Department of Applied Mechanics

Dr. Surender Kumar, professor & Head, Department of Applied Mechanics, participated in National Seminar on Engineering Trends in Manufacturing Processes, during November, 1997. He has presented his two technical papers and also chaired one of the technical session.

Department of Applied Physics

Dr. R. K. Popli was invited as resource person to National workshop on one teacher schools, Dhanbad (Jan. 7-11, 1998).

Debjani Basak and P.K. Barhai attended 12th national Symposium on Plasma Science and Technology (Dec. 2-5, 1997) organized by Institute for Plasma Research Bhat, Gandhinagar and PSSI and presented three papers.

Dr. P.K. Barhai attended the 22nd National Symposium on Instrumentation (Oct. 22-25, 1997) at NPL, New Delhi and presented a paper on anodic vacuum arc for nanolayer deposition.

Department of Architecture

Paper presentation in a National seminar on "Role of General Management in Indian construction sector" organized by school of building science and Technology, CEPT, Ahmedabad. Title of the paper - "Quality Management in Construction by Prof. Pawan Kumar.

Project presentation for a career award' 98 for young teachers in All India Council for Technical Education (AICTE), New Delhi. Title of the project - Architectural Education in India for 21st century by Prof. Pawan Kumar.

Department of Civil Engineering

Prof. Gopal Pathak :

a. Visited University of technology, Sudney Australia as a visiting scholar during May - June 1997.

b. Visited Royal Melbourne Institute of Technology, Melbourne, Australia as visiting scholar during June '97.

c. Participated and presented a paper in the Sixth International Conference on safe communities during 15th-19th Oct., 1998 at Johannesburg, S. Africa.

Prof. Binay Kr. Singh :

a Participated in National Seminar conducted by the Institution of Engineers at Calcutta on the topic 'Recent advances on non-destructive evaluation techniques on 17th, 18th of April '98.

Department of Computer Science

"Java Programming : an Introduction" Presented in the International Conference on Modelling & Simulation, Victoria Univ. of Tech. Melbourne, Australia, October - 29-31, 1997 by Dr. P. K. Mahanti.

Department of Electrical & Electronics Engineering :

Mr. R. C. Jha attended a winter-school on "New Trends in Active Filters for Improving Power Quality" From Dec. 22, 1997 to Jan 3, 1998 at REC, Rourka.

Dr. B.M. Karan attended an international workshop on "Soft Computing and Intelligent Systems" in Jan. 98 at ISI, Calcutta.

Dr. B.M. Karan delivered lecture on "Application of Neural Network and Fuzzy Logic in Induction Motor Control", in Jan. 1998 in a national workshop at Baba Saheb Naik College of Engineering, Pusad, yavatmal (Maharashtra).

Department of Information Science

Dr. U N Singh, Head of the Department attended one day International seminar on "Exploring Internet services for Library and Information" organized by United States of Information Service (USIS), Calcutta on 21st Feb 1998.

Dr. U N Singh attended two days workshop on "Modernization of Information Science Course" from 28th Feb. to 1st March 1998 organized by Makhanlal Chaturvedi National University of Journalism Bhopal, M.P.

Department of Polymer Engineering

Dr. (Mrs.) M. Mukherjee, Assoc. Professor attended national Seminar on "Recycling and plastics waste management" held in chennai 24-26 September, 1997.

Ms. S. Goswami, Asst. Professor, registered to attend National Seminar on "Polymer Research in Academy, Industry and R & D Organization" to be held in Calcutta - 26-27 June 1998.

Department of Production Engineering

Prof. Atul Anand attended a Workshop on "Designing a successful web site and publishing on the web" organized by Tata Energy Research Institute, New Delhi on 19th & 20th of March, 1998.

Prof. B. K. Singh participated the Science and Engineering Research Council (SERC) School on "Advance Manufacturing Technology" at the Production Engineering Department, Jadavpur University, Calcutta from 9.6.97 to 21.6.97.

Dr. S. Kumar and Prof. B. N. Jha attended National Seminar on "Emerging Trends in Manufacturing Processes" on Nov. 7-8, 1997, organized by National Institute of Foundry and Forge Technology, Ranchi.

Department of Remote Sensing

Dr. S.S. Dhabriya, Prof. and head of the Remote Sensing Department has been nominated as Convener of the Task Group on Remote Sensing by the General Body of National Association of Geographers, India in its 19th Indian Geography Congress concluded at Kerala State Science and Technology premises at Thiruvanantpuram during 27-31 December 1997.

Prof. S.S. Dhabriya has been nominated as Chairman of the Organising Committee of the Asian Conference on Air Pollution to be held in India at Jaipur during 2-4 October 1998.

Srivastava, Ajay, a member of the Departmental Faculty presented a paper entitled 'Landuse Planning in Kanpur City using GIS and IRS-1C Data' in the National Symposium on Remote Sensing for the natural Resources at NRSA, Hyderabad, November 23-26, 1997.

Department of Space Engineering & Rocketry

Dr. Mohan Verma & Dr. J. N. Mishra attended the National Seminar on RESPOND Project in Space Technology organized by Indian Space Research Organization at Vikram Sarabhai Space Centre, Trivandrum on Feb. 17 & 18, 1998.

RESEARCH PAPERS, BOOKS, ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATIONS

Department of Applied Chemistry

S. S. Majhi and P. K. Srivastava "Velocity potential for Schlogl's model", Journal of Indian Chemical Society (in press) 1997.

P. K. Srivastava and S. S. Majhi, "Synthesis of Urea-Acrylic Acid Resin Oriental" Journal of Chemistry Vol. 13, No3, 1997.

P. K. Srivastava and S. S. Majhi, "Syntheses of Urea Acrylic Acid resin proceedings", 34th Annual convention of Chemistry, Indian Chemical Society, held at University of Delhi, Delhi IAC-8, Dec, 17-20 1997.

Department of Applied Mathematics

"Quadrature Based Finite Element Approximation to Time Dependent Parabolic Equations with Non-smooth Initial Datas Calcolo", Journal of Numerical Analysis, R. K. Sinha and A. K. Pani.

"A Qualocation method for Hyberbolic Integro-Differential Equations", Proceedings of SIAM Conference on Mathematical and Numerical aspect of wave propagation, R. K. Sinha and A. K. Pani.

"Unsteady Laminar Swirling Flow with vectored mass transfer and an applied magnetic field", Dr. S. Roy, accepted for presentation in the National Symposium on Recent Trends in Theoretical and Applied Mechanics held during 15-17 Nov. 1997. at R.E.C. Kurukshetra, Haryana.

The following research Papers have been sent for Publication :

"An exact solution of unsteady two-dimensional second grade MHD fluid flow", Dr. C. Thakur & Prof. Balram Singh, sent for publication in International Journal of Theoretical Physics, U.S.A.

i "Hodographic study of rotating orthogonal MHD Non-Newtonian Fluid flow", Dr. C. Thakur and Prof. Balram Singh, submitted for publication in International Journal of Theoretical Physics, U.S.A.

Free Vibration of Circular Plates, Elastically restrained against rotation at the edge by method of collocation by Derivatives" by Dr. S. K. Jain submitted to International Journal of Computer and Structure, U.S.A.

Department of Applied Mechanics

Kumar, Dr. Surender, Sutardhar, G., "Closed Die Akisymmetric Forging of Sintered Aluminium Performs", Journal of Material Processing Technology, 68, 1997, pp 19-22, Elsevier Science, U.S.A. Switzerland.

Kumar, Surendra and Sidiqqui, S.A., "New Waves in Manufacturing", Prof. National Seminar on Emerging Trends in Manufacturing Processes, India. 1997, paper no. T4, pp T4-1 to T4.5.

Kumar, Surender and Jain, A.K., "Designing and Achieving Zero Defect Strategy Through Tom Culture in India Foundries", proc. emerging Trends in Design, Allahabad, India, 1997 pp v 151-162.

Kumar, Surender, Jha, A.K. and Agarwal., "Manufacturing Flexibility and on-time Delivery performance". Proc. National Seminar, ETMP-97, pp T5.1 to 5.7 paper no. T-5.

Jha. A.K. and Kumar, S., "Investigations into the High Speed forging of sintered copper power strips", J. of materials processing technology, 71 1997, pp 394-401, Elsevier, U.S.A.

Books :

Kumar, Dr. Surender, "Industrial Engineering and Management of manufacturing system", Sataya Prabaslan, New Delhi, November, 1997.

Kumar, Dr. Surender and Jha, A.K., "Technology of computer aided design and manufacturing", second edition, revised and enlarged). Dhanpat Rai and Sons, Delhi, February, 1998.

Department of Applied Physics

S. Keshari and P.K. Barhai "Study of Thermoelectric power of High-Tc samples using Extended hubbard Model". Pramana J. of Physics Vol 1.49 No 3 (1997) pp 293-300.

S. Keshari and P.K. Barhai "Thermoelectric power of Bi- 2212 and T1-2212 high - Tc systems using extended Hubbard Model with finite one-site Coulomb interaction". Accepted for publication on Czech. J. Phys.

P.K. Barhai, "Anodic Vacuum arc for nanolayer deposition" Accepted for publication in Journal of Instruments Society of India 1998.

R.K. Popli "One Two Three .... Infinity : a critical Appraisal". Resonance Vol 2, Noll (No 1970).

R.K. Popli "Curriculum and Training for one - teacher schools". A Booklet in Hindi published by Vanavasi Kalyan Ashram (1998).

Department of Architecture

Article on education published in leading Architectural Magazine "ARCHITECTURE + DESIGN" (Jan -Feb'98 issue) by Prof. Manjari Chakraborty.

Department of Civil Engineering

Prof. V. C. S. Rao, "Deep Excavations and Related Movements" presented at Geotropika 97. Regional Conference in Geotechnical Engineering 1997, 11 - 12 Nov. Johar Bahru, Malaysia.

Department of Computer Science & Engineering

P. K. Mahanti, "Behaviour of Predator-Prey Interactives : A simulation Study," International Journal System Analysis Modelling, Gorden & Breach Science Pub., Amsterdam, Netherland, pp.1-8, July, 1997.

P. K. Mahanti, et.al "Application of databases ibn discrete simulation data modelling" Journal of Information & Optimization science, vol. 18, no. 3 pp-423-430, 1997.

P. K. Mahanti et. al," A Step by Step Analysis Reconfigurable Computer System" accepted for presentation in International Conference on Educational Computing, March, 1997.

P. K. Mahanti, "Laboratory Teaching of Data & File Structure," International Journal of Modeling & Analysis, 1997, Vol. 31, 1&2, pp-29-35, 1997.

P.K. Mahanti, "Implementation of Information Abstraction System with Task Maintenance,:" International Journal of Modelling and simulation, Vol. 31, 1&2, pp. 37-43, 1997.

P.K. Mahanti et. al "Algorithm based Fault Tolerance in an on line computation," Journal of Computer society of India, May 1997.

P.K. Mahanti, G.K. Saha, : EMP-fault tolerant computing : a new approach", Journal of Microelectronics system Integration, vol. 5, no. 3, 1997.

P.K. Mahanti, G.K. Saha "A fault tolerant software design for process monitor system," submitted for presentation in ICAR CV98 , Dec. 8-11, 1998.

P.K. Mahanti, et. al "Structure and Implementation of internet in Arab world - survey, accepted for presentation in Journal Association of Modelling & Simulation Lyon, France, Feb. 25, 1998.

P.K. Jana, "First Parallel Algorithm for Forecasting" accepted for computers Math Application, USA, 1997.

P.K. Jana, "Efficiency Parallel Algorithm for Language & Hermite Interpolation in Journal of Applied Science & Computation, USA, 1997

Department of Electronics & Communication Engineering

Research Paper Communication : "High order harmonics of photo refractive crystal", S.K. Ghorai et al. Communication in Journal of Optics, India.

Department of Mechanical Engineering

"Hydrogen : Tomorrows limitless fuel" by Prof. Arvind Kumar has been accepted for publication in the journal of Institution of Engineers, Mechanical Engg.

Department of Pharmaceutical Sciences

B. K. Razdan and A. R. Paradkar, "Evaluation of Dosage Forms IV : Studies on Commercial Phenylbutazone Tablet Dosage Forms", *Drug Dev. Ind. Pharm.*, accepted for publication.

B. K. Razdan and N. V. Nagaraja, "Evaluation of Dosage Forms V : Studies on Commercial Tablet Dosage Form of Naprawan, *Pharm. Pharmacol. Commun.*, accepted for publication.

S. P. Basu, R. Chandra, A. S. Pai and D. Ravi Kumar, "Antifungal activity of Karanjin and Crude Karanj oil", Paper presented 49th Meeting of Indian Pharm. Congress, Thiruvanthapuram, Dec. 1997.

B. N. Sinha, N. Anabalagan, D. Sasmal, and S. P. Basu, "Phytopharmacological Studies on Nyctanthus arbortriatis", Paper presented at 49th meeting of IPCA Congress, Thiruvanthapuram, Dec. 1997.

G. M. Panpalia and P. O. Pillai, "Studies exploring the utility of DSC as an instantaneous predictor of drug-excipient interactions". Paper presented at 49th Meeting of IPCA Congress, Thiruvanthapuram, Dec. 1997.

B. M. Verma and B. Saha, "Determination of Taxol in the leaves of Himalayan yew by HPLC", paper presented at 49th Meeting of IPCA Congress, Thiruvanthapuram, Dec. 1997.

P.R. P. Verma and S. Madhusudhan, "Polymer concentration effect and release kinetics on carlsopol 974P tablet for controlled release". Paper presented at 49th Meeting of IPCA Congress, Thiruvanthapuram, Dec. 1997.

B. K. Singh, D. Sasmal, and K. P. Sinha, "Work cycle Design for heavy and moderately heavy work load", Inst. of Engineers (I), 77, 20 (1997). (This paper was awarded certificate of merit).

Department of Production Engineering

Dr. S. Kumar and others presented a paper on "Manufacturing Flexibility and on-Time Delivery Performance" at the National Seminar on "Emerging Trends in Manufacturing Processes" organized by the National Institute of Foundry and Forge Technology, Ranchi on Nov. 7-8, 1997.

Prof. B. K. Singh was awarded a certificate of Merit on 10.1.98 by the Institution of Engineers, India for his paper entitled "Work Cycle Design for heavy and moderately heavy work loads" published in the I.E. Journal.

Prof. Alok Verma, "Process Automation in Steel Industry - Near Net shape continuous casting of Thin strips" National Seminar on ETMP-Nov., 1997 NIFFT, Hatia, Ranchi.

Prof. Alok Verma, "Simulation as a Tool for Non-Destructive Testing in Aerospace Industry" National Seminar on DELE, DRDL, Hyderabad, Dec., - 1997.

Dr. S. Kumar, "Investigation into the high speed Forging of Sintered Copper Powder strips", Journal of Material Processing Technology, 71 (1997) 394 - 401, ELSEVIER, Netherland.

Department of Space Engineering & Rocketry

B. L. Gupta and Mohan Verma, "Ignition and Combustion Studies on Metallized UDMR-RFNA Bipropellant System Indian Journal of Engineering & Material Sciences, 1998 (in press).

Mohan Verma, B. L. Gupta and M. Pandey, "Performance and Ignition Studies on Metallized Monomethyl Hydrazine Gelled Fuel Systems", J. Inst. of Engs. 1998 (Communicated)

Shrivastava, A. K. and Singh R. K., "Effect of Aspect Ratio on Buckling of Composite Plates", Journal of Composite Science and Technology, (U.K.) accepted for publication (1998).

Shrivastava, A. K. and Singh R. K., "Effect of Fibre Volume Fraction on Buckling of Composite Plates", accepted for presentation at the 32nd Solid Mechanics Conference, scheduled to be held at Zakopane, Poland, during Sept. 1-5, 1998.

Dr. A. K. Shrivastava has written a book entitled "Antariksha Vigyan Avang Kachhiya Gati Vigyan" in Hindi for M.E. /M. Tech Students. The book is in the process of Publication.

Department of Remote Sensing

Srivastava A., Tripathi, N.K. and Gokhale, K.V.G.K. (1997), "Salinity Mapping using Remote Sensing and GIS". International Journal of Remote Sensing (U.K.), vol. 18, No. 13, pp 2853-62.

Srivastava, A and Singh, R.P. (1997) "Urban Landuse Planning in Kanpur City using GIS and Remote Sensing". Proceeding of the national Symposium on Remote Sensing for Natural Resources at NRSA, Hyderabad, Nov. 23-26, 1997.

Srivastava, A and Singh R.P. (1998) "Role of Faizabad ride in the Evolution of Indo-Gangetic Plain", Proceedings of Workshop on Himalayan Foreland basin with special reference to pre-Shiwalik Tributries at Jammu University, March 16-19, 1998.

SCHOLARS REGISTERED FOR Ph.D

During the year 1997-98 five scholars have completed their research for the award of Ph.D. degree.

S.No.	Name of Scholar	Title of Thesis
1.	Shri Gopal Pathak	Air Pollution in Coal Fields with special reference to Jharia Coal Fields.
2.	Shri B. K. Mishra	Computer Aided Modelling of Solid State Photo-detector.
3.	Shri Taposh Kumar Roy	Problems & Prospects of Marketing of Drugs manufactured by Small Scale Industries
4.	Shri Alok Verma	New Strategies for Improving Industrial Productivity.
5.	Shri Gautam Sutradhar	Development of Forged Components using Sintered Preforms.

Fifteen new scholars have registered for Ph.D. programme in the subjects/areas of their study as stated below :

S.No.	Name of Scholar	Title of Thesis
1.	Shri Rampal Singh	Vibration of Plates
2.	Shri S. Bhat	Process of Larning for Turnaround in Productivity-strategy Formulation and its implementation.
3.	Ms. S. M. Verma	Synthesis and Pharmacological activities of some new analogs of azabicycla nonanes.
4.	Shri Ramesh Chandra	Studies on L-Asparaginase.
5.	Shri P. K. Das	Experimental studies on Fatigue of Glass and larbon Fibre reinforced composites under adverse environmental conditions.
6.	Shri B. K. Singh	Experimental studies on Buckling behaviour of Fibre composite stiffened plates.
7.	Shri I. B. Singh	Role of Developmental Agencies in the Socio-Economic development of tribes of Chhotanagpur region.

8.	Shri Arun Kumar	Structural Engineering
9.	Shri Birendra Kr. Singh	Water Resources Engineering
10.	Sri Hari Shankar Gupta	Change Detection in the Forest Cover and Tree Density using Remote Sensing Technology - A Case Study of Ranchi District.
11.	Shri K. Niranjan	A critical study of inventory management in PSU's : a case study of HEC
12.	Ms. Debjani Basak	Metallic Surface Coating Using Anodic Vacuum Arc.
13.	Shri K. N. Jha	Science in the Periphery - A Scientometric Analysis of Science in the Southern African Countries.
14.	Mrs. Richa Sharma	Detection of change in the Forest Cover of Chhotanagpur using multi-data satellite imagery.
15.	Shri Ajay Srivastava	Role of Surface ridges in the evolution of Indo-Gangetic Plain : An Intergrated approach using Remote Sensing and GIS

Besides the above, the following 42 scholars were registered for their Ph.D. in the previous year(s); they are continuing the work under the guidance of the respective Doctoral Committees :

1.	Gautam Kumar Saha	Transient Fault Control by Software
2.	Manoranjan Pandey	Catalytic Influence on Thermal Deg radation and Burn rate of Composite Solid Propellants and their ingredi ents.
3.	Balram Singh	A Theorietical Study on Magneto-Fluid Dynamic Flows
4.	S. A. Siddiqui	Technological Aspects for Improving Productivity of a Forge Industry
5.	M. Gopal Krishna	Artificial Neural Networks applied to Rolling Mills.
6.	K. S. Madanpuri	Application of Fuzzy and Expert Systems to Telecommunication
7.	D. N. Prasad	Studies on some indegenour seed of for possible utilization in pharmacy
8.	S. Samanta	Synthesis & studies on piperidine Analogs
9.	P. R. P. Verma	Studies on Pharmaceutical uses of some seed Gums.
10.	Shri Deepak M.	Standardization of Herbal Drugs.
11.	S. V. Subhashini	Numerical Study of Unsteady Com pressible Boundry Layer Flows.

12.	Shri Rajendra Prasad	Quality System for Guided Weapon Systems.
13.	Shri Pramod Kumar Dash	Experimental Studies on Fatigue of Glass and Carbon Fibre Reinforced composites under Adverse Environ - mental Conditions.
14.	Shri B. D. Choubey	Physio-Chemical study of coordinated Malonic Acid and similar Compounds.
15.	Mrs. Sunita Keshri	Study of Oxide Superconductors with high transition temperatures.
16.	Mrs. Aruna Jain	Study of Non-equilibrium Plasmas.
17.	Shri K. R. Roy Choudhary	Buckling of Laminated Composite Plates.
18.	Shri Amit Jana	Theoretical Modelling of Heterou-nction field Effect Transistor for high speed and Opto-Electronics Applica-tions.
19.	Shri S. K. Datta	Some Theoretical studies on Optically controlled Microwave Semiconductor Devices.
20.	Shri A. K. Mishra	Some Experimental Studies on Environ mental Pollution due to Diesel Engine Exhaust.
21.	Shri S. N. Thakur	Castability, Forge-ability, Machinability and Fracture behaviour of Aluminium silicon Alloys.
22.	Shri Sudhir Sharan	Computer based Analysis & Modelling for Integrated Working Capital Man-agement.
23.	Shri R. S. Yadav	Impact of Physical Training on Mana-gerial Effectiveness - a case study of some Institutions and Organisations.
24.	Shri Pawan Kumar Rai	Solid Waste Management in Steel Plants for improved Environment.
25.	Shri Durgesh Pant	A complete study of Reconfigurable Computer Systems.
26.	Shri Prasant Kr. Mukherjee	Quadratic Sruds and Methods of Appr-oximating them in Ancient and Medi-aeval Mathematics.

27.	Ms. Sandhya Rani	Study of some Chemical aspects of stres induced Magnetic & Electromagnetic Effects in Transition Metals and Intermetallic Compounds.
28.	Shri Arun Kumar	Synthesis and Pharmacological studies of Indian Analogs.
29.	Sri Rabindra Pd. Sharma	Modelling of the Combustion Process for a Fuel Efficient four stroke spark Ignition Engine.
30.	Sri Arbind Kumar	Investigation on Metal Hydrides as carried to run the future vehicle engine on Hydrogen.
31.	Shri T. R. Ranganath	Studies on Honey Comb Stabilised Saltless Solar Pond.
32.	Sri U. S. Prasad	Stress induced magnetic and E.M. effects in Metals.
33.	Shri Girish Pathak	Tribological investigations in Mechanical Processing.
34.	Shri K. K. Verma	On the Design of some Computer Algorithms to solve second order - ordinary Differential equations.
35.	Ms. Swastika Ganguly	Syntheses and study of newer Imidazole Analogs.
36.	Shri G. Jagadeesh	Study of solar pumped Lasers for space Applications.
37.	Shri S. K. Ghorai	Nonplinear Optics
38.	Shri M. Adiraj	Synthesis and use of Methyl Phosphonate containing Oligonucle otides for the study of B - Z DNA Transition.
39.	Shri B. N. Sinha	Phytochemical and Pharmacological Studies on some Plants used in Indienous System of Medicine.
40.	Shri N. K. Singh	Pharmacological Studies of pseudopelletierine analogs
41	Ms. Deepa Kulkarni,	Formulation and Evaluation of Oral sustained Release Drug Delivery Systems using Tamarind Seed Polyse
42.	Shri N. V. Nagaraj	Pharmacokinetics of Methyl-N (S-(4 (2-Pyridinyl-1)-1-Piperazinyl) carbonyl)-1H-Benzimidazole-2-yl)carbamate (CDRI 81/470), a new broad spectrum Anthelmintic Agent

STUDENTS ACTIVITIES

Various cultural activities are organized by the different societies/clubs. At present there are 17 such societies and clubs in the Institutes each being supervised by a senior Professor as its in-charge. All the students activities of various societies are under the overall supervision of the Cultural Co-ordinator. A number of activities were organised by the different clubs/societies in the year 1997-98. Some of these were :

Engineering Society :

Participated in 'Freedom -50 festival' and organized Vateez Quiz, Hard sell and Technical Group Discussion. Organized an Industrial Tour to TISCO. Celebrated Engineers Day to mark the Birth Anniversary of Sri M. Vishweswaraiya. Dr. V. S. Diwedi (AGM, RDCIS-SAIL) delivered a guest lecture on the occasion. The other events organized were a Picnic to Panchghat and Open House Debate in collaboration with UNESCO CLUB. Also took active part in BITOTSAV-98, the Institute's Annual Cultural Show and organized Technical Writing, Quiz and Technical Group Discussion.

Amateur Radio Society :

Conducted regular classes on Morse Code for the members and arranged lectures on computer communications. Organized Electronic Circuit Design Contest, Software Design Contest, Ham-Quiz, Ham-Crossword and a lecture on INTERNET by DGM of USHA MARTIN, RANCHI during HAM-MEET. Participated in BITOTSAV-98 and put up an exhibition on HAM activities. Also organized HAM Crossword and HAM Quiz. Puneet Mohan Sangal, General Secretary, HAM and K. Kalyan participated in HAMFEST-INDIA held at Cochin in December, 1997.

Audio Visual Educational Club :

Regular Sunday Movie Shows were organized throughout the year. Cine Quiz, Antakshari, General Quiz were organized on the occasion of 50th year of Independence and AVEQ'98. Also, participated in BITOTSAV-98 and organized the event of Hollo Wood in addition to other regular events.

Dramatic Society :

Organized various street plays like "Vartaman" on 15th August, "Sara Jahan Se Accha Hindustan Hamara" on 26th Jan, 1998 and Drama Competition "SPANDAN" on 23rd and 25th Feb., 1998. Eight Plays were staged during the competition. "KALYUG" a Maithili play was awarded the best play award. Also presented a play named 'ZEHAAD' at IIT, Kanpur. During BITOTSAV-98, the society staged two plays named N2O (Laughing Gas) and WARIS. The remarkable feature to be noted was that WARIS was composed with Visual Effects on Screen, which was attempted for the first time in B.I.T.

Music Club :

Organized a number of events like Music Night on the 6th Feb., 1998, for BITOTSAV-98 and on 11th April, 1998. Both Eastern and Western Music and Songs were presented during these events.

Dance Club, a sub-section of Music Club organized a dance show on 27th Feb., 1998 during BITOTSAV-98. It was a heterogeneous mixture of Classical, Nagpuri, Panjabi, Eastern and Western dances.

Fine Arts Society (FAS) :

FAS had organized events like Sit and Draw competitions on the occasion of the 50th year of Independence and BITOTSAV-98. FAS delegates to Spring Fest, IIT, Kharagpur have won several prizes in the Sketching and Cartooning Sections. FAS delegates also won several prizes in Junk Art competition organized at IIT, Kanpur.

Indian Association for College Going Scientists (IACGS) :

During Monsoon Semester IACGS organized some Technical Quiz and Debates and screened some Science Fiction Films. IACGS also participated in BITOTSAV-98 and organized Technical Debates and Quizzes.

Bitian Nature Club (BNC) :

BNC started its activities with welcome to 97 Batch with colorful posters in August 1997. BNC participated actively in BITOTSAV-98 by organizing Nature Pass-Word, Nature Quiz and Poster Display. It concluded its activities by arranging a nature Trip to Johna-Falls on 29th March, 1998.

Pooja Committee :

During 1997-98 Sarasawati Pooja and Vishwakarma Pooja were organized with enthusiasm and gaiety. The members of the Pooja Committee took keen interest in decoration, Prasad distribution and Idol visharjan. The campus residents also took part in Pooja in good number. All prayed for the peace prosperity and knowledge. All the functions were organized smoothly and to the satisfaction of every body.

Student Society of Architecture (OBSA) :

OBSA actively participated in BITOTSAV-98 and was involved in the decoration of the stage of BITOTSAV-98 and organized various events. It also participated in National Association of Students of Architecture (NASA) '98 held in Mumbai in Dec., 97.

News & Publication Society (NAPS) :

The News and Publication Society was involved in information sharing where it started its annual calender of activities with the welcome information bulletin "Bonjour" for the new batch. To keep every one aware of the happenings of in and around the Institute, NAPS came up with quarterly wall magazine "NAPARAAZI" and covered various sports and cultural activities with appropriate previews and reports. NAPS was the print media manager for BITOTSAV-98 with its involvement in publicity, publications,

organizing Info-Cell, handling and compiling of all results of various results competitions. To tap potential literary skill amongst the students, NAPS had organized creative meeting platforms for them.

Bartiya Sahitya Parisad (BSP) :

BSP organized Music shows during the celebration of 50th year of Independence. Also, during BITOTSAV-98, BSP organized events like Antakshari, Creative Writing, Poem Writing competitions etc.

Photo Graphic Society :

As in the previous years, the society in this year also covered the various Cultural activities which took place in BIT, BITOTSAV-98, FREEDOM-50, The Annual Sports Meet etc. to name a few. Besides, the society could arrange group photos of all outgoing students of every branch. This year, the society opened a Studio also in the Institute building. Over all the society could achieve a modest turnover of approximately Rs. 50.000/-.

Rotract Club :

During 1997-98 the members took active part during the Independence Day, Republic Day celebrations and BITOTSAV '98. They also organized a cultural festival- CARAVAN '98 successfully. Anti-smoking campaign was one of the significant contributions of the club.

GAMES, SPORTS & N. C. C.

Games & Sports

Since inception, the Institute has placed emphasis on Games and Sports. These activities form an integral part of the curiculum of the under-graduate course as they are treated as a full subject in the Ist and 2nd Semester of the B.E. and B. Pharm Degree programme. Accordingly, the students are exposed to physical training & Drill, Gymnastics etc.Thrice a week and on other days they are required so play the alloted games of their choice. Suitable arrangments for trainiing and participation of girl students has also been made and their participation in P.T. & Games in compulsory. Now a days, on an avarage over fifty percent of the students take part in Games & Sports, Athletics (track and field) on regular basis.

Noticing the positive interst in the said programmes of Games & Sports and physical training among the students, it has been made mone extensive leading up to 4th semester of B.E. & P. Pharma and B. Arch.

Other than the routine activities of P.T. & Games and the Annual Atheletics Meet, the Institute orgnises and conduct Inter Technical Institutes and Inter university Touranaments of zonal and National level in various dicipline of Games and Sports sponsored by Association of Indian Universities almost every year to get the students more motivated and inspired by participation and observation.

In the year 1997-98, All India Inter University (East Zone and Inter Zone) Hockey Tournament for men was organised in the month of December 1997. Eastern Zone Inter Technical Institute Chetan Devraj Memorial Cricket Tournament was also organised.

N.C.C.

In the year 1997-98 NCC activities of 3 Bihar Comp.(Tech.) cores, N.C.C. Mesra, have run smoothly giving basic training to 110 enrolled cadets of Ist Semester 1997 batch. The strength as enrolled are Signals - 43 cadets, E.M.E. - 36 cadets, Engineers - 31 cadets. With the approval of T.C. Committee the N.C.C. has been extended for four semester courses. This will enable the cadets to take part in A.T.C. Camps and eligible to appear for B-Certificate exams. The cadets were given the basic training of drill, weapon training, firing, adventure activities etc. The cadets also took part in the Independence day and Republic day parade. Overall performance of the cadets in the course work and practical training was good.

STUDENT WELFARE SCHEME

Financial Assistance to needy students : The Institute provides Full freeship / half freeship to very poor and poor students respectively. The number of students benefited during 1997-98 were 84.

Book Bank : Books are loaned to the needy students through Book Bank Scheme.

THE STUDENTS' HALLS OF RESIDENCE

The Institute is completely residential and all the students are provided with a room in one of the Hostels or Halls of Residence. The campus has seven hostels for boys and two sperate hostels for girls.

All the hostels are spacious and beautifully laid out in the serene and pleasant campus. The front portion has well maintained lawns with flower beds, elegant bushes and strategically planted ornamental trees. The interior of the hostel includes spacious Dining Halls, Common Rooms, Reading Rooms, Recreation Halls, Photography Dark Rooms located on both the sides of the main entrance. The rooms are constructed in a row with a wide varandah all along the length with air gaps and balconies well set for common use.

The students are provided with a single-seated room furnished with steel cot, table and chair and a built-in almirah. The girl students avail a shared furnished room which is quite spacious and airy. Each room has a cupboard, wardrobe and a sizeable rack.

Indoor games like Table Tennis, Carrom and Chess etc. are available in each hostel in the common room. The Reading room subscribes to a large No. of Magazines, Periodicals and Newspapers covering wide taste of reading of residents. The Entertainment Hall has also been provided with Colour Television set in each hostel.

Inter-hostel tournaments in indoor and outer games, quizes, competitions and adventure trips are a ragular and very attractive feature of the hostel life.

The Hostel Night organised by the inmates is a memorable yearly event where students interact with the faculty members amidst cultural and music programmes, fun and frolic, in festive mood. The Halls are tastefully decorated to mark the occasion.

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.

TRAINING AND PLACEMENT

The Training and Placement Division interacts with potential employers to try and best match the aspirations of the students with the requirements of the organizations. Campus placements have shown a continuously successful trend for several years. Over 3000 graduates and post-graduates have been successfully recruited through campus interviews during the past 16 years.

During 1997-1998, 31 premier Organisations visited the Institute offering a total of 322 appointments to students from different disciplines. Some organizations are expected to finalize or increase their selections later. The majority of the organizations are offering starting salaries of Rs.1-1.2 lacs per annum with some offering higher salaries of 1.3 to 1.5 lacs per annum.

Bio-datas and profiles of students of various disciplines (M.B.A., B.E., M.Sc. Bio-Medical Instrumentation, M. Sc. Information Science, DCA, etc.) have also been dispatched to potential employers, with positive responses.

The Division also encourages and helps to arrange industrial training for students during their vacations, at Organizations spread all over the country. During 1997-1998, over 650 students received training during the Durga Puja and summer vacations.

The summary of campus placements during 1997-1998 is as given below :

Summary of campus placements, 1997-1998

Discipline/Branch	No. of Jobs
B.E. MECHANICAL	76
PRODUCTION	14
ELECTRICAL & ELECTRONICS	62
ELECTRONICS & COMMUNICATION	69
COMPUTER SCIENCE	37
CIVIL	10
B. PHARM.	04
M.B.A.	05
M.C.A.	31
M.E. ELECTRONICS	05
MECHANICAL	02
ELECTRICAL	04
M. Sc. Inf. Sc.	07
TOTAL NO. OF APPOINTMENTS	327
NO. WAITLISTED	03
NO. SHORTLISTED (FINAL INTERVIEWS TO BE HELD OR RESULTS NOT INTIMATED)	27

The brief details of confirmed appointments offered to the outgoing students during 1997-1998 is as follows. The complete data are given later.

Composite Campus Placement Status 1997-1998

	Organization	Appointments
1.	Tata Consultancy Services	119
2.	Dun & Bradsteet Satyam software, Chennai	12
3.	Wipro Systems, Bangalore	25
4.	Ramco System, Chennai	06
5.	Satyam Computer Services, Secunderabad	21
6.	TISCO, Jamshedpur	25
7.	HCL corp., Noida	06
8.	Hindustan Motors-EED, Madras	01
9.	Tata Cummins Limited, Jamshedpur	04
10.	Telco, Jamshedpur / Mumbai	05
		03*
11.	TTIL, Jamshedpur	03
	TTIL, Pune	01*
	TTIL, Lucknow	01*
12.	ITC, Bangalore	06
13.	Tata Infotech, Noida	33
14.	ICIL, Pune	09
15.	Information Management Resources, Bangalore	04
16.	UBEST, Calcutta	03
17.	TATA Telecom, Culcutta / Delhi	01
18.	Larsen & Toubro ECC, Calcutta	04
19.	Hindustan Motors, Calcutta	05
20.	Larsen & Toubro, Powai Works, Mumbai	01
21.	Bharti Cellular Ltd., New Delhi	04
22.	Shalman Pharmaceuticals, Baroda	07*
23.	TCG Software Services, Calcutta	09
24.	Subhash Projects & Marketing Ltd., Calcutta	03
25.	Indorama Synthetics Ltd., Nagpur	01
26.	Pasteur Mereiux Connaught, Calcutta/Delhi	04
27.	Voltas Limited, Mumbai	03
28.	Hindalco, Renukoot	01
29.	Hindalco, Renusagar Power Divn., Renusagar	02
30.	Dr. Reddy's Laboratories, Hyderabad	14*
31.	Electrolux - Kelvinator, Shahjhanpur (Raj.)**	
32.	LML Limited, Kanpur (Off Campus)	02
33.	Bengal Chemicals & Pharmaceuticals, Calcutta	04*
34.	Castrol India, Calcutta/Mumbai	01*
35.	Pensol (India), Ranchi / Indore	04
Total No. of Selections		327

* Results of final interview awaited

** Shortlisted from campus; interview awaited

The other organizations which have planned to visit are :

1. ABB, Calcutta
2. Asian Paints, Mumbai
3. Bharti Telenet Ltd., Bhopal
4. Crompton Greaves, Mumbai
5. Mahindra & Mahindra, Mumbai
6. Microland, Bangalore
7. Rajshree Cement, Karnataka
8. I.T.C. Tissue Division, Secundrabad
9. Koshika Telecom, New Delhi

Annexure - I

BOARD OF GOVERNORS

(As On 01-05-1998)

Chairman	:	Shri G. P. Birla
Vice-Chairman	:	Shri C. K. Birla
Members :		
Nominee of the Government of India. Ministry of Human Resource Development	:	Nomination awaited
Nominee of the University Grants Commission	:	Nomination awaited
Nominee of the All India Council for Technical Education	:	Dr. Tilak R. Kem
Commissioner & Secretary Sc. & Tech., Govt. of Bihar, (Ex-officio)	:	Shri A. K. Upadhyay
Commissioner & Secretary Higher Education, Govt. of Bihar, (Ex-officio)	:	Shri Chintu Nayak
Commissioner, Chhotanagpur Divn. (South), Bihar, Ranchi (Ex-officio)	:	Shri S. S. Verma
Nominee of the Chancellor	:	Shri F. Ahmed
Nominee of the Hindusthan Charity Trust	:	Shri C. K. Birla Shri Deepak Chatterjee Dr. H. C. Pande
Vice-Chancellor, BIT, Ranchi (Ex-officio)	:	Prof. S. K. Mukherjee
Member of Institute Faculty	:	Prof. S. C. Goel Dr. Awadh . K . Singh
Members selected by the General Council	:	Shri D. N. Patodia Shri K. P. Singhi Shri G. P. Lal
Secretary : Registrar (Actg.)	:	Prof. G. Sahay

Annexure - II

TECHNICAL COUNCIL

(As On 01-05-1998)

Chairman : Vice-Chancellor, BIT, Ranchi (Ex-officio)	:	Prof. S. K. Mukherjee
Members	:	Shri G. P. Lal Nomination awaited Nomination awaited
Director of Technical Education, Govt. of Bihar (Ex-Officio)	:	Dr. Bharat Bhushan
Director of Higher Education, Government of Bihar (Ex-Officio)	:	Dr. Vidyasagar Yadav
Professors of the Institute	:	Dr. B. K. Razdan Dr. J. N. Mishra Dr. N. L. Munjal Dr. S. Kumar Prof. S. H. Kekre Prof. S. C. Goel Prof. B. S. Rajeevalochanam Dr. R. K. Shrivastava Dr. Ashok Mishra Prof. Awadh Prasad Dr. A. K. Chatterjee Dr. R. C. Prasad Dr. B. G. Varshney Dr. P. K. Mahanti Dr. S. P. Basu Dr. J. Ram Prof. M. K. Saxena Prof. S. P. Bhatnagar

Annexure - II

(Continued)

Professors of the Institute (Cont.)	:	Prof. B. P. Roy
		Dr. N. C. Mahanti
		Prof. A. P. Singh
		Dr. S. N. Mehrotra
		Dr. P. K. Barhai
		Prof. S. Sengupta
		Prof. K.R. Roy Chowdhary
		Prof. N. R. Rao
		Prof. B. M. Karan
		Prof. K.P. Singh
		Dr. B.L. Gupta
		Dr. D. Jairath
		Prof. R. K. Narayan
		Dr. Mohan Varma
		Dr. G. M. Panpalia
		Prof. K. V. Krishnamurthy
		Dr. D. Sasmal
		Dr. S. S. Dhabriya
		Prof. Ram Pal Singh
		Prof. N. Sengupta
		Prof. G. C. Singh
		Prof. R. S. Yadav
		Prof. B. K. Verma
		Dr. R. K. Popli
		Dr. B. N. Das
		Dr. S. C. Prasad
Persons appointed by the Chairman vide Clause 4 of the Regulations	:	Dr. (Mrs.) M.Mukherjee
Librarian	:	Dr. U. N. Singh
Controller of Examinations	:	Dr. P. C. Joshi
Secretary : Registrar (Actg.)	:	Prof. G. Sahay

Annexure - III

FINANCE COMMITTEE

(As on 01-05-1998)

Chairman	:	Shri G. P. Birla
Members :		
Nomineee of the University Grants Commission	:	Shri P. Bhatia
Nominee of the Chancellor	:	Shri S. Vijayaraghawan
Nominee of the Board of Governors	:	Shri C. K. Birla
Nominee of the General Council	:	Dr. H. C. Pande
Vice-Chancellor, B.I.T., Ranchi	:	Prof. S. K. Mukherjee
Hony. Treasurer, B.I.T., Ranchi	:	Shri S. S. Jajodia
Secretary :		
Registrar (Actg.)	:	Prof. G. Sahay

BUILDING & WORKS COMMITTEE

(As on 01-05-1998)

Chairman		
Vice-Chancellor, B.I.T., Ranchi	:	Prof. S. K. Mukherjee
Members :		
Adviser, Planning & Campus Development	:	Prof. G. P. C. Rao
Treasurer, B.I.T., Ranchi	:	Shri S. S. Jajodia
Representative of the Institute Architects	:	M/s. Kothari and Associates, Calcutta.
Representative of the State PWD	:	Nomination Awaited
Head, Dept. of Civil Engg.	:	Prof. B.S. Rajeevalochanam
Member-Secretary :		
Registrar (Actg.)	:	Prof. G. Sahay

Annexure - IV

EXECUTIVES AND DEPARTMENTAL HEADS/INCHARGES

(As on 01-05-1998)

Vice-Chancellor	- Prof. S. K. Mukherjee
Treasurer	- Shri S. S. Jajodia
Registrar (Actg.)	- Prof. G. Sahay

DEANS

Policy Planning & Faculty Development	- Dr. B. G. Varshney
Post-Graduate Studies	- Dr. B. K. Razdan
Under-Graduate Studies	- Prof. S. H. Kekre
Collaborative Research Programmes	- Shri T. R. Ranganath
Extension Centres	- Dr. P. Dhyani
Assistant Treasurer	- Shri G. S. Chhaochharia

DEPARTMENTAL HEADS/INCHARGES

Architecture	- Prof. N. Sengupta
Applied Chemistry	- Dr. B. L. Gupta
Applied Mathematics	- Dr. B. G. Varshney
Applied Mechanics	- Dr. S. Kumar
Applied Physics	- Dr. J. Ram
Civil Engineering	- Prof. B. S. Rajeevalochanam
Computer Science & Engineering	- Dr. P. K. Mahanti
Electrical & Electronics Engg.	- Dr. R. K. Shrivastava
Electronics & Comm. Engg.	- Prof. S. C. Goel
Management	- Prof. S. K. Mukherjee
Mechanical Engineering	- Prof. A. P. Singh
Pharmaceutical Science	- Dr. B. K. Razdan
Polymer Engineering	- Dr. (Mrs.) M. Mukherjee
Production Engineering	- Prof. S. K. Mukherjee

Annexure - IV

(Continued)

DEPARTMENTAL HEADS/INCHARGES (Cont.)

Physical Education & Sports	-	Shri R. S. Yadav
Remote Sensing	-	Dr. S. S. Dhabriya
Space Engineering & Rocketry	-	Dr. N. L. Munjal
OSD & Controller Entrance Examination	-	Prof. S. P. Bhatnagar
Controller of Examinations	-	Dr. P. C. Joshi
Co-ordinator Semester Programme	-	Dr. D. Sasmal
Finance	-	Shri M. L. Verma
Library	-	Dr. U. N. Singh
Medical Officer	-	Dr. (Mrs.) C. Mishra
Nodal Centre	-	Prof. M. K. Saxena
Training & Placement	-	Dr. D. Jairath
Chief Warden	-	Dr. Gopal Pathak
Cultural Co-ordinator	-	Dr. P. K. Barhai