# Annual Report 2000-2001





BIRLA INSTITUTE OF TECHNOLOGY MESRA, RANCHI (INDIA)

# BIT-PRAYER प्रार्थना

यं शैवाः समुपासते शिव इति, ब्रह्मेती वेदान्तिनो बौद्धाः बुद्ध इति प्रमाण पटवः कर्तेती नैयायिकाः । अर्हन् नित्यथ जैन शासन्वताः कर्मेती मीमांसकाः सोउयं नोविद्धातु वांच्छित् फंल त्रैलोक्य नाथो हिरः॥

# ANNUAL REPORT 2000-2001





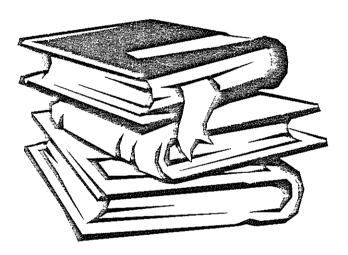
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# About this Report



Report-2001

## VICE-CHANCELLOR'S REPORT

The Institute during the period under reference in the present report had continued consolidation of its on-going academic programmes. The ground floor measuring about 17,000 Sft. of the Hi-Tech R&D Building is almost complete and is expected to be operational by August 2001. The PARAM-10000 as Super Computer has been successfully installed and commissioned. Computer terminals adequate enough to provide opportunities to more than 175 students individually for performing computer related assignments and laboratories have already been created. It is proposed to add another 150 terminals during the next year. The extension of the Girl's Hostel for accommodating 40 more students have been completed and is currently under use. The expansion of Lalpur Technology Centre annexe and the Extension Centre at NOIDA are in advanced stage of completion. Both are expected to be complete by August 2001.

The AICTE expert team visited the Institute for approving new M.E. programmes in the areas of – (i) Fuels & Combustion, (ii) Quality Engineering, (iii) Automated Manufacturing Systems, (iv) M.Pharm programme with specific programmes (a) Pharmacology and (b) Pharmacognosy and (v) M.Tech. programme in Industrial Mathematics and Scientific Computing.

Further more, the AICTE has been approached to send Visiting Committees to grant formal approval to the programmes at Extension Centres of the Institute. The programmes leading to 6-months Advanced Diploma in Computer being conducted in collaboration with the Centre for Development of Advanced Computing (C-DAC), a Government of India organization along with other short-term programmes in the area of Web Designing and Internet are running successfully.

The Institute organized six academic interaction programmes in the form of national Seminars/Workshops. Such activities started with an all-India Conference entitled "Marketing Summit 2000 - Excellence through I.T. Applications" organized by the Department of Management on Sept. 15-16. 2000 at BIT's main campus. The second programme was in the form of a Workshop on "Copyright Matters and IPR Related Issues" - a 2-day 'Patent Awareness Programme' was held during November 4-5. 2000 at the Institute. The third one was organized by the Department of Pharmaceutical Sciences – a Workshop on "Self Improvisation of Inservice Pharmacists and Community Pharmacists" held on November 5, 2000. The fourth one was a Seminar on "Advanced Mathematical Tools for Antena Theory and Design" which was held by the Department of Applied Mathematics and Department of Electronics & Communication Engineering between January 16 and 18, 2001. The fifth programme was a 2-day Seminar on "Aerospace and Rocket Technologies: Challenges Ahead" organized by the Department of Space Engineering & Rocketry which was held during February 23-24, 2001. The last one held during the period under review was a "Colloquium of Kinematics & Dynamatics" which was organized by the Department of Applied Mechanics during March 19 to 21, 2001 at the Institute. The participants in these programmes have been greatly benefited and encouraged by the deliberations made by the distinguished and eminent speakers in their respective domains/fields.

The long pending project for establishing a University Polytechnic was cleared by the Jharkhand Government after the creation of the new State. As soon as the first instalment of funds was released, the activities for creating the basic infrastructure of academic space and hostels have been taken up vigorously and it is expected that the Polytechnic would be operational during the period Aug.-Sept. 2001. In the first year i.e., the academic session 2001-2002, 60 students belonging to SC & ST would be admitted to the two programmes namely, Diploma in Automobile Engineering and Diploma in Electronics Engineering. From the subsequent academic session i.e., 2002-2003, 40 more students would be admitted to the Diploma Programmes of Pharmacy and Computer Sciences. The total intake from the academic session 2002-2003 of the Polytechnic would be 100. During the year under consideration 10 research projects funded by the UGC/AICTE have been initiated. These projects have a total value to tune of 100.00 lakhs. 53 faculty members have been encouraged by the Institute to present papers in different national/international seminars held in India. Three Patent Applications have filed with the appropriate authorities during the period.

Irrespective of mass participation of students in Games & Sport activities there were specific programmes of intramural competitions in various teams of Games & Sport and Annual Sport meet.

Intramural Tournaments in Football, Volleyball and Basketball are organised during Monsoon Session of the academic year 2000-2001. East Zone Inter Technical Chetan Devraj Cricket Tournament was organised in November 2000 and B.I.T. Mesra retained the Championship. The Annual Athletic meet (Track & Field) of the Institute is Scheduled in spring session of 2000-2001. Institute Team in the following discipline of games and sports participated in Inter University Tournaments 2000-2001 during Monsoon session. Football, Table Tennis, Cricket, Hockey, Badminton, Table Tennis, Apart from said activities; scheduled training programme in physical education, P.T. and Games, up to 4th semester students are running smoothly for the harmonious development of personality and physical fitness of the students.

The students of the Institute organized the annual cultural event BITOSAV during February 2001 wherein individual participants as well as the different student activity groups participated. A few students of the Institute have participated in the cultural programmes of other Institutes and won several prizes.

The International Centre at Bahrain has become operational during the year under review. The first batch of students were admitted to the different programmes of the International Centre. In view of the achievements of the Institute at Bahrain Centre, the Institute has been receiving requests for opening such centers at Oman and Nepal.

The Institute has already initiated discussion with the different State Government Departments of the newly created Jharkhand State to participate actively in the development programmes of the State. As part of this exercise the Institute has submitted a plan for increasing its students intake at Under-graduate level by 180 students and at Post-graduate level by 50 students to the State Government. The Institute has also submitted proposals to the State Government to create a research facility in the area of Biotechnology. The Institute plans to submit a proposal to the Department of Science & Technology. Government of India, to establish the State's NRDMS Centre at BIT. Mesra. The Institute has already submitted a plan to the UGC to have a computer LAN established within its main building.

It is expected that the Institute will start its activities in the domain of Information Technology with much more vigor in the next year with more liberal and generous support anticipated from the Government of Jharkhand and Government of India. The Institute looks forward for creation of a model computing facility in which simultaneously 300 students should be able to attend to the sessional works. The Institute further plans to establish network connectivity between its main campus and a few Extension Centres to start with and enter the era of e-Education.

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# Institute profile at a glance

#### **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 was started 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 (1964-1966) 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 Chancellor of the Universities of Bihar made the Rules for its governance.

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
Bachelor Degree Courses			
■ Electrical & Electronics Engg.	45	4 years	1955
<ul> <li>Mechanical Engg.</li> </ul>	90	4 years	1955
Civil Engg.	60	4 years	1957
Electronics & Comm. Engg.	60	4 years	1964
Production Engg.	30	4 years	1964
■ Pharmacy	30	4 years	1972
Computer Science	30	4 years	1983
Architecture	20	5 years	1993
Polymer Engg.	30	4 years	1995
* B.Sc. (Comp. Sc./ Electronics)	30	3 vears	1996
Computer Applications		<u>.</u>	
(Girls)	90	3 years	1998
(Boys)	90	3 years	1998

Course	Intake Capacity	Duration of Course	Year of introduction of the Course
Master's Degree Courses:			or the course
Electrical	12	1 1/2 years	1964
Control System		1 112 (011)	1704
* Power system			
Mechanical	06	1 1/2 years	1964
■ Heat Power Engg.			
Civil	02	1 1/2 years	1964
Soil Mechanics			
Structural & Foundation Engg.	1		
Electronics & Communication	12	1 1/2 vears	1965
• Instrumentation	A 200	r iiz years	1703
* Microwave			
	. , ,		
Space Engg. & Rocketry	10	1 1/2 years	1965
Rocket Propulsion			
Aerodynamics			Service Control of the Control of th
Business Management	30	2 years	1980
Marketing	50	_ years	1980
• Finance			
• Systems			
■ Industrial Management			
Pharmacy	10	l 1/2 years	1983
Pharm. Chemistry		jours	1700
■ Pharmaceutics			
Pharmacology	2	1 1/2 years	1998
■ Pharmacognosy	2	1 1/2 years	1998
Pharm. Biotechnology	2	1 1/2 years	1998
M.E.(CAAD)			
Computer Aided Analysis & Design		1 1/2 years	1999
■ Tribology		1 1/2 years	
M.E (Production)			
A.M.S.		1 1/2 years	110 A 441
Computer Applications	30	3 years	1984
M.Sc. Bio-Medical Instrumentation	15	2 years	1992
M.Sc. Information Science	15	2 years	1993

M.Tech Remote Sensing	15	1 1/2 years	1996	
M.Sc. Information Technology (girls)	15	2 years	1999	

## Continuing Education (part time) Post-Graduate Programme

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

- A certificate of Merit after Completing 5 units.
- A diploma after completing 10 units.
- 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
P.G. Diploma Courses			
Computer Applications	30	1 years	1988
Master of Engineering	<del>== 1111</del>	3 years	1974
<ul> <li>Civil Engineering</li> </ul>			
<ul> <li>Electrical Engineering</li> </ul>			
<ul> <li>Mechanical Engineering</li> </ul>			
<ul> <li>Industrial Engineering</li> </ul>			
<ul> <li>Computer Aided Analysis &amp; Design</li> </ul>		2 1/2 years	1999
A.M.S.		2 1/2 years	1997
Management			
M.B.A	30	3 years	1980
Computer Applications			
■ M.C.A.	30	4 1/2 years	1984
■ D.C.A.	30	1 1/2 years	1988
M.Tech Computer Sc.	30	1 1/2 years	1996
M.E. Software Engineering	15	1 1/2 years	2000

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

•		
	Doctor of Philosophy	
İ	Doctor or rangeophy	

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

#### **Extension Centres**

In order to cater 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 offer MCA, MBA, M.E., M.Tech, and P.G.DCA, B.Sc. (Comp.Sc.) and BCA courses. An Extension Centre at Naini, Allahabad in the year 1997-98. 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. The Bachelor of Computer Application Degree programme has already been started at our extension centre at Noida. Other PostGraduate Programmes in the areas of Business Administration, Computer Applications, Software Engineering and Interior Design, are in the planning stage.

#### About the Administration

B.I.T Mesra is a "Deemed University" under Sec.3 of the U.G.C. act 1986. 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 U.G.C., the State Government, The Chancellor, The A.I.C.T.E., The Trust and the Institute Faculty. Shri G.P Birla is the Chairman of the Board of Governor's. The Governor of the state of Jharkhand is the chancellor of the Institute. Composition of the Board of Governors is given in Annexures.

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 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 Annexures. The Finance committee gives financial advice to the Institute. Similarly, The building and works committee advises the institute in matters relating to building works activity. The construction of the Finance Committee and Building & Works Committee is given in Annexures.

In addition, there are a number of other committees like the Regulation Committee for Under-Graduate Courses. Semester Programme Coordination Committee, Admission Committee, Scholarship Committee, Student's Welfare Committee etc. This Committee is appointed by the Technical Council to help the Admission in the efficient running of the Institute.

## Student Intake

There are 2618 students who have been enrolled during the current Academic year 2000-2001. The branch-wise enrolled is detailed below.

Course	Full-time	Part-time
Bachelors of Engineering	1337	
B. Architecture	102	M 44 44
B. Pharmacy	116	
B.Sc. (Computer Sc. / Electronics)	74	
BCA	402	
BBA	99	
MBA	76	56
MCA	138	30
DCA	13	-1
M. Pharmacy	25	***
M.E. / M.Tech.	54	71
Bio Medical Instrumentation	26	
Information Science	48	

Total	2411	າ	07
			07

# Faculty Members

Against the sanctioned strength of 213 Faculty positions, 196 are filled with 24 vacancies. The break-up is as follows:

Category	Sanctioned		In Strength	Vacancies
Professor	57		45	12
Associate Professor	62	***	51	11
Asstt. Prof./Lecturer/ Associate lecturer	94		100	01

The number of administration 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 has been provided accommodation on the campus. About 60% of the administration and other supporting staff have been provided accommodation on the campus.

#### About the campus

The Institute is fully residential and extends over 780 acres. The main building of the Institute covers an area of 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.
Main building & Administration block	3700
<ul> <li>Class room &amp; laboratory, Drawing halls, Staff room's etc.</li> </ul>	9300
<ul> <li>Library block</li> </ul>	2600
<ul> <li>Space Engg. &amp; Rocketry block including Explosive and Fuel centre</li> </ul>	930
<ul> <li>Workshop sheds, General stores, Garage / Godown</li> </ul>	3721
■ Gymnasium	850
<ul> <li>Animal House</li> </ul>	400
<ul><li>R &amp; D Building(Basement + Ground Floor)</li></ul>	3600
Residential Complex	
<ul> <li>Staff quarters in different categories</li> <li>Residential complex for supporting services:</li> </ul>	300 Nos.
Forest Guards. Dairy, ShopKeepers, Washerman etc.	70 Nos.
Hostel Accommodation	
<ul><li>Seven Boy's Hostel</li></ul>	1410 Rooms(single)
■ Two Girl's Hostel	198 Rooms
<ul><li>One Foreign Student's Hostel</li></ul>	152 Rooms(single)

#### Guest Accommodation

The Institute maintains three Guest-Houses. Two general purposes Guest-Houses with 38 furnished rooms and VIP Guest-Houses with 3 deluxe double bedrooms to accommodate Guests appropriately.

#### Auditorium

To meet the growing needs of the community for public function 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 Administrative Block.

#### Games & Sports

The Institute has a Gymnasium, which is spacious enough to arrange indoor games. Extensive playgrounds are provided for various sports. They are:

=	Gymnasium including Multi Gym		I
•	Stadium for Tracks & Fields for Sp	eorts / Athletics	Į
=	Cricket ground including net		2
•	Football grounds	***************************************	2
Ħ	Hockey grounds		2
=	Basket Ball courts		
×	Volley Ball courts		6
Œ	Tennis courts		6
=	Badminton courts (one indoor		
	and five outdoor)		
R	Kho-Kho ground		
	Kabaddi ground		1

#### Dispensary-Cum-Health Unit

An Eight-Bed hospital provides the medical facilities to the large campus community mainly as an outdoors-patient unit. The three full- times and one part-time doctor and other para medical staff support this unit. Excellent rapport exists for acute medical needs with the Government Medical College & Hospital at Ranchi.

#### Shopping Centre

A well maintained 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 bookstore to meet the growing needs of the Campus has been completed the annual commodities sold through these outlets of the campus exceeds Rs.2 crores mark in value.

# Others:

		sq.	mtrs.
	Consumers co-operative stores		375
=	NCC Block	***************************************	400
	Rifle Firing Range	***************************************	1Nos.
	NCC Parade ground		1 Nos.
×	Primary / High School(temporarily		
	,		744
	Gaurage Cum Quarters		200

# Central Library & Core Labs



#### DOCUMENTATION AND LIBRARY SERVICES

#### **Collection Development**

An upto date collection of publications like books periodicals, conference proceedings, technical reports.CD-ROM databases, standards, etc. reported through literature, catalogues and bibliographies etc. has been maintained for use at national level.

#### List of Additions

lt is quarterly classified list, which includes new Publications like books, reports, standards and Conference proceedings added to the library.

#### **Technical Processing**

Publications added to the collection were classified, catalogued, indexed and well maintained for efficient retrieval.

#### Xeroxing and Printing Services

As the central facilities in the Institute, Xeroxing, Microfilming, Printing Services were provided for inhouse publications, day-to-day circulars, office orders, special reports etc.

#### Library Statistics

Books added during the period = 3517

Total Number of Books = 67244

Back volumes = 16335

# Computer based Information Storage and Retrieval System

The library is fully equipped with one CDNET (with four drives), one server and 20 nodes, all connected in LAN and two workstations attached with one laser printer for getting the full text. A TCP/IP account for Internet with necessary hardware and accessories have been added recently. Six more terminals added to existing Internet facilities.

#### COMPUTER CENTRE

The Computer laboratory is equipped with six high end systems known to be qualified under the super minicomputer and one PARAM-10000 Super Computer category, the details of each one is described below:

- PARAM-10000 Super Computer, 8 CPU (Ultrasparc 11 @ 450 MHz), 2 CPU/node,2.5 GB aggregate memory, 10×9.1 GB Ultra SCSI HDD, 32 × CD ROM drive per node, 1.44 MB FDD per node, 2×360W power supply per node, PG×32 Graphics card per node, 101100 fast Ethernet Card in each node, 8 port PARAMNET switch, 4 Nos. PARAM NETCPP2 Card, 12 port fast Etherner switch, console 21", 4 mm 12124 GB DAT, Solaris 7 server unlimited user license, university workshop softwares, C, CT, F-7, F-90, Pascal, Visual XP, Teamware, on PACT, SPARC works, NEO works, Java, JOE and performance libraries. Application softwares: PHONICS, PAM-CRASH, AMBER FEMCOMP etc.
- DEIL 5100 from Digital India with RISC CPU, R3000 and the floating point unit R3010, 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 1.85GB. It has 95 MB CTD and 32 terminals. The operating system is ULTRIX and supports C, Pascal, Cobol and FORTRAN compiles along with INGRESS RDBMS package.
- TUL U6000/65, a high-end system from TATA UNISYS with two i80486 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 CDROM. 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<sup>++</sup> and Image Processing and vision software.
- DEC-Alpha-600 has Alpha@175MHz with 2.5 GB Hard disc, 600 MB CDROM, 500 MB CTD and 96 MB RAM. It runs on VMS operating system and has FORTRAN, PASCAL, C, C<sup>++</sup> and COBOL compilers, GKS and PHIGS package installed as RDBMS. It is linked with two 8-port terminal server over DECNET.
- DEC-Alpha-300 has Alpha@125MHzwith 2.5 GB Hard disc, 600 MB CDROM 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 3 150 MHz machine with window-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, Speaker Mouse, 535 MB HDD, CDROM, IRIX Operating system with C, C<sup>++</sup>, Pascal. Cobol compilers, Multimedia showcase.

- SUN ULTRA 140 workstation/64MB/2GB HDD/17" color monitor/CD ROM Drive/Microphone/Built in Ethernet/Solaris 2.5 operating system/Java workshop/C/C++/FORTRAN Compiler installed in July, 1997.
- SUN UltraSparc-150 Highend Workstation and Server with Solaris (SUNOSreleases S5.1 Generic 10364008 [Unix ® System V release 4,01], 64 MB RAM, VM 110MB, HDD 2GB, CD-ROM, Window System-open Windows Version 3.5.1 with JAVA workshop. C, C<sup>++</sup>, Fortron Compilers.
- One high end IBM Netfinity Server Pentium-II having cloack speed 450 MHz/256 MB SDRAM/9.00 GB HDD/ 32X CD ROM/ Floppy Drive IBM Mouse and 14" SVGA, Color monitor, 104 keyboard with Window NT Operating system
- 20 N0s. IBM PC\_GL\_300 Pentium-II system with 350 MHz clock speed 32 MB SDRAM/ 4.2 GB HDD, 104 keyboard, 14" SVGA, Color monitor, 10/100 Networkcard, with Windows 95 & 98 operating system.
- 2 Nos. server of HCL Infinity MNC brand system PII 333 MHz made server/64 MB SDRAM/ 4.3 GB HDD/ 1.44 FDD/SVGA with 2 MB color Monitor Digital 32X CD Drive Keyboard/Mouse.
- 2 Nos. Multimedia system of Wipro System Genius 6100-HMOE/Intel Pentium II-333 MHz/512 KB Cache/ APG Graphics with 4MB VRAM/4GB Ultra DMA Controller/2\*16550 Fast Serial Port/1 EPP-ECP Port/2USB Port 96 MB SD-RAM/104 KBD/Win 98/14" Monitor with Multimedia Kit/40X CD Drive/SBS 10 Creative speaker sound card/Microphone.
- There are a number of Dot Matrix Printers and a line printer with a printing speed of 600 lpm as a common facilities to the above mentioned system. All these system are networked on Ethernet with TCP/IP and NFS. Apart from the above 20 Pentium range of machines with SVGA, 8 MB or more RAM and 80 MB or more hard discs. The microcomputer based software packages include FOX-Pro for Windows 3.1, MS Fortran, MS Word 6.0 for Windows 3.1, MS Visual Basic 6.0, Borland C<sup>++</sup>, Turbo Pascal 7.0, JAVA, J<sup>++</sup>, Visual Studio etc. There is also 2 Trnsputer based parallel processing workstation with parallel C, parallel Fortran and one Tektrinix 41 15B graphics workstation. Recently institute has started E-mail and plan to start Internet access facility through Department of Telecommunication. Government of India, for students and staffs. The Department currently providing computing facilities for 200 students at a time in one slot and kept open for all 7 days from 8 am to 8 PM for the users and plan to start Internet access facility through Department of Telecommunication. Government of India.

#### CENTRAL CAD LABORATORY

#### Hardware Facilities:

PC-486 9 No. Celeron 5 No.: Pentium-I 9 No. Pentium-II 1 No. Pentium-III II No. CD Writer 2 No. Printer (LQ-1050.DX, Canon BJC-4550)

Plotter(ENCAD-CADJET-2)

#### Software Facilities:

This is a central facility used by the students from almost all the disciplines. This laboratory is well equipped with a good number of latest models of PCs connected to a server. This laboratory is made mainly for graphics applications under various platforms- DOS. Novel NetWare. Windows NT, Windows-95 and 98. Students from Under Graduates and Post-Graduate are getting the facilities to work on the packages like Auto CAD, 3D-Studio, I-DEAS(Artisan Series-3), SMARTCAM, MATLAB, Circuit Maker, Smart Work, STAAD-III, Math CAD, Financial Analyst, SYSSTAT, Principle of Economics, Visual C++, Turbo C++, Visual Basic and Fox Pro etc. An A0 size colour Plotter is also available here for the users to get the hardcopy of the Graphics output.

The Graphics packages are being used to do two or three dimensional drawing and analysis of machine parts, Civil and Architectural Designs. Circuit Maker and Smartwork are used to design and analysis of Electronic Circuits. Users, students and research scholars, are solving the complex mathematical problems using MathCAD package. This Institute is providing the facility to the users to develop their own software packages by using Visual C++ and Visual Basic. MATLAB provides a technical computing environment for high performance numeric computation and visualization. It is integrated with numerical analysis, matrix computation, signal processing and graphics in an easy to use environment. A number of tool boxes- Signal Processing, Control Processing, Statistics, Image Processing, Neural Network, Fuzzy Logic and Optimization are available under MATLAB.

#### ACADEMIC INNOVATIONS RESEARCH & DEVELOPMENT

There has been a constant endeavour to acquire state of art facilities in our laboratories and to carry out research and development work in the emerging areas of Applied Sciences, Engineering & technology. The focus of research and development has been on the new fields of inter- disciplinary research. The curriculae in Engineering, Pharmaceutical Science, and Management disciplines have been revised and upgraded.

To keep pace with the technical advances and future trends in industry, the institute industry interaction has been encouraged. Several new programmes offering consultancy, testing facilities, trouble shooting and technology development, are being persued.

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, Robot Technology and environmental engineering 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.

The Institute has already initiated discussion with the different State Government Departments of the newly created Jharkhand State to participate actively in the development programmes of the State. As part of this exercise the Institute has submitted a plan for increasing its students intake at Under-graduate level by 180 students and at Post-graduate level by 50 students to the State Government. The Institute has also submitted proposals to the State Government to create a research facility in the area of Biotechnology. The Institute plans to submit a proposal to the Department of Science & Technology, Government of India, to establish the State's NRDMS Centre at BIT, Mesra. The Institute has already submitted a plan to the UGC to have a computer LAN established within its main building.

# MICROPROCESSOR RESEARCH 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 Design Institute (CMPDI) and Heavy Engineering Corporation (HEC) for development of instrumentation and control systems. 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 throughout 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 expansions. The HP 9000 system is networked with two HP64000 Development stations to constitute HP-Design Centre.

35 Microprocessor kit have been added during 2000-2001.

#### ROBOTICS LABORATOEY

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.

#### PLASMA LABORATOEY

The main activities of the Plasma Engineering Laboratory are in the areas of Plasma Technology for the development of new materials using Anodic Plasma Deposition Technique, application of Plasma Technology in material processing like plasma welding, cutting tool hardening etc. and low temperature plasma technology using glow discharge and low pressure are discharges for coating by thermal evaporation processes. The Anodic Plasma Deposition Unit, which was developed last year by the Plasma Technology group headed by Dr. P. K. Barhai, has been used to produced both mono and multilayer metallic coatings Characterization Techniques of these coatings in terms of electrical conductivity using four-probe method, crystal structure using XRD and thickness measurement using quartz crystal oscillator have been developed. The unit is

Being further modified to make it suitable for depositions of nitrides and oxides by the incorporation of feed throughs for gas inlets.

The project entitled "Metallic Multilayer Surface Coating Using Anodic Vacuum Arc". sponsored by ISRO, Govt. of India, has been going on under the Principal Investigatorship of Dr. P.K. Barhai. On the basis of the expertise gained in the area of anodic plasma deposition, a new project on the development of the superconducting thin films of alloy Superconductors has been submitted to UGC for support under major research project. Some low temperature plasma experiment rigs for measurements of the electron density in low-pressure gas discharges are being fabricated for undergraduate students.

The project entitled "Nondestructive testing of deposited thin film using real time holography." sponsored by AICTE is in progress.UV transparency test of translucent corrugated polymer sheets and certification provided for local industries under the supervision of Dr. P. K. Barhai.

Some of the major facilities existing in the plasma laboratory are:

- Anodic Plasma Deposition Unit
- Sputtering Deposition Unit
- Low Temperature Plasma Generation Units (HHV and IBP Torr)
- Cascade Plasma Torch (Hypertherm, U.S.A.)

- Optical Emission Spectroscopy Unit consisting of Monochromator (JOBINYVON, France), Photomultiplier Tube (300 - 1100 nm), X-Y Recorder, Computer controlled Scanning, Photomultiplier Read - Out, Optical Fiber assembly for coupling of Monochromator to the source etc.
- 15m W He-Ne Laser
- Atomic Absorption Spectrophotometer.
- 30m W He-Ne Laser.
- Lattice dynamic Kit.
- Dielectric Constant Kit.

# FLEXIBLE MANUFACTURING AUTOMATION

Today's multi-option market there is greater need for flexible production that can be used on a variety of products, models and styles. Planners for new facilities now want their machines, robots and material handling systems to be integrated into a flexible manufacturing system (FMS). The keyword is "System". FM takes advantage of the flexibility of robots, NC machine tools, industrial logic controllers and microprocessors in creating an over all flexible system.

Realizing this trend of switch-over from Hard automation of 1950s to flexible automation in today's industry, a Flexible Manufacturing Systems 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 that give an insight to students regarding fast changing manufacturing scenario in today's industry. The equipment and machines installed in the laboratory include –

- 1. CNC Trainer Lathe (EMCO)
- 2. CNC Trainer Milling Machine (EMCO)
- 3. A complete FMC comprising of
  - a) TRIAC CNC Milling Machine
  - b) ORAC CNC Trainer Lathe
  - c) Conveying System with Conveyor
  - d) Two Move Master Robots
  - e) PC and PLC Control System for coordinating control actions of different elements (DENFD)
- 4. Co-ordinate Measuring Machine (CMM-KEMCO)
- 5. Flexible Machining Cell Comprising of
  - a) Machining Center
  - b) Linear Movement continuous path robot
- 6 Single Spindle Automatic Lathe (Model D-25)
- 7 Hydraulic Universal Cylindrical Grinding Machine (Model U127/500)
- 8 Tool Dynamometers
- 9 Breadth by Breadth Exercise Test system

#### ENVIRONMENTAL ENGINEERING LABORATORY

The Laboratory is well organized for testing of various Environmental Pollutions with precision and speed. It is 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 CRT. 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 feature.

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

# Research & Development Activities



#### **Department of Applied Chemistry**

Besides catering to the teaching load, the Department is Actively engaged in analysis and testing of variety of substances e.g. water, sewage, aluminum, lime, cement, concrete, metallic ores and alloys. The consultancy work is also undertaken as and when approached.

#### On Going Research Projects/ Consultancy Work:

Name of Investigation	or Title of Projects	Agency
I. Dr. Bimal Verma	Synthesis and Application of High Temperature Plastics	A.I.C.T.E
II. Dr. Bimal Verma	Synthesis and Characterizata of Dye Based Polymers	U.G.C

#### Department of Applied Mathematics

Apart from participating in teaching programme in both Under-Graduate and Post-Graduate Courses of the Institute, the faculty members of the Department are actively involved in research and consultancy work in various fields such as MHD Flows, Mathematical Modelling, Water Waves, Environmental Pollution etc.

#### On Going Research Projects/ Consultancy Work:

Name of Investigator		Title of Projects	Agency	
1.	Dr. N.C. Mahanti	Coastal dispersion model	U.G.C	
2.	Dr. S.C. Prasad	Formability of Sintered performs	D.S.T	
3.	Dr. S.C. Prasad	Hydrodynamic action in material processing	U.G.C	
4.	Dr. S.K. Jain	Transient analysis of Laminated Composite Plates by Finite Element Method	AICTE	
5.	Dr. S.K. Jain	Vibration of Non-Linear Sandwich Plates	U.G.C	

# Equipment Added During This Year:

Adding a Laser Printer and a Scanner has enriched a Computer Laboratory of the Department. Dr. S. K. Jain guided projects of Mechanical Engineering students in Finite Element Analysis of vibration of beams and plates.

#### National Seminars, Colloquium Conducted In The Department:

- The Department Organised a National Seminar on Brainstorming Session on Futuristic development of Mathematical Models for Applied Sciences. Prof. R. P. ROY Vice- Chancellor of Birsa Agricultural University, Kanke, Ranchi inaugurated the seminar Dr. N.C.Mahanti, Prof. & Head of the Department were Organising Secretary of the Seminar.
- The Department Organised a National Seminar on Advanced Mathematical Model for Antenna Theory and during 16<sup>th</sup> to 18<sup>th</sup> January2001., CSIR, Ministry of Science and Technology(New Delhi), DRDO, Vikram Sarabhai Space Centre, NRSA sponsored the seminar. Sri Samaresh Singh, Hon'ble Minister of Science and Technology, Jharkhand., inaugurated the seminar Dr. N.C.Mahanti, Prof. & Head of the Department were Organising Secretary of the Seminar.

#### Department of Applied Mechanics

The Department is involved in teaching and research in the broad areas of Computer Aided Analysis and Competitive Product Design, Fluid Mechanics, Stress Analysis, Tribo-Technology, Reliability, Maintenance Engineering and Structural Dynamics. It runs a Post-Graduate Programme in M.E.(Computer Aided Analysis and Design) to provide students with an in depth understanding of Computational Modelling.

Existing central facilities like library, CAD Lab is to be properly scheduled. Both the central facilities are essential for our ME(CAAD) programme. It will be helpful for us if we can get the time schedule in advance for the maximum use of CAD Lab.and accordingly we can make our time schedule .Library timings are to be changed so that faculties and the students can utilise the library beyond college hours. We also need help from the stuff and faculties of Computer Science & Engineering Department for the use of PARAM 10000 computer.

**Prof. S. Sengupta** took charge of the Department of Civil Engineering and **Prof. A.K.Ray** who joined as Professor in the Department of Applied Mechanics took charge of the department in place of **Prof. S. Sengupta**.

The course curriculum and Syllabi of the courses for ME(CAAD) programme has been changed to make it more relevant and worthwhile to the ME(CAAD) programme. A Board of Studies meeting with two external members was organised. All the recommendations of the board were implemented in the new curriculum.

#### On Going Research Projects/ Consultancy Work:

	Name of Investigator	Title of Projects	Agency
I.	Dr. S.Kumar& Prof. A. Kumar	"Development of Water Jet Technology"	A.I.C.T.E
II.	Dr. S. Kumar & Dr. S.C. Prasad	"Formability of Sintered Preforms"	D.S.T.

Several research proposals have been sent to the C-DAC, DST and AICTE for sponsorship.

#### Equipment Added During This Year:

A small computer lab. has been added to the department. Two IBM Netvista computer with Pentium-III processors multimedia kit and SDRAM 64 KB, HDD 10 GB, 52X CD-ROM drive. This lab also has one Inkjet printer HP DJ 840C and 24 pin DOT matrix printer.

#### National Seminars, Colloquium Conducted In The Department:

A colloquium on Kinetics and Kinematics was organised from the department. Several experts on this field have delivered lectures on the different topics on history of Engineering Mechanics, coupler curves, Case studies on Newtonian Mechanics, Kinematics, Robotics etc.

#### Memorandum of Understanding (MOU):

A Memorandum of Understanding (MOU) between the **Institute** and **Polmec Engineers** has been reached to tackle technical problems in the industries. Institute will offer design and engineering consultancy to the Polmec Engineers.

#### Department of Applied Physics

It has been the endeavor of the department to impart improved instructions on Physics and Engineering Materials courses by reviewing them from time to time and making them more intensive and interactive. In order to fulfill this objective undergraduate syllabus has been modified, laboratories upgraded substantially by introducing new experiments.

Projects in the areas of Material processing, Non-linear Optics have been submitted by the faculty members to various funding agencies in the country.

Department has created a conducive environment for the local industries, which have benefited from consultancy offered by our group. Industries have got their product tested & certified by our Research Laboratory.

## On Going Research Projects/Consultancy Work:

- Under the Principle Investigatorship of **Dr. P. K. Barhai**, a project entitled "Metallic multilayer thin film deposition using anodic vacuum arc", sponsored by ISRO is in progress.
- Under the Principle Investigatorship of **Dr. P. K. Barhai**, a project entitled "Non-destructive testing of deposited thin film using real time Holography", sponsored by AICTE is in progress.
- UV transparency test of translucent corrugated polymer sheets and certification provided for local industries under the supervision of **Dr. P. K. Barhai**.

# Laboratories established and equipment's added during the year

The following equipment were added during this session:

- 1. 30 mW He-Ne Laser
- 2. Lattice dynamic Kit
- 3. Dielectric Constant Kit

# Academic Innovations, Research & Development

The following R & D activities were completed:

- Thin film coatings of aluminum on glass substrates.
- Thin film coatings of copper on glass substrates.
- Thin film Cu-Fe thermocouples on glass substrates were developed using anodic vacuum arc plasma for non-intrusive instrumentation.
- Decorative gold coatings were developed on silver wares using anodic vacuum arc plasma.
- Regular weekly departmental seminars were organized throughout the year.

#### Department of Architecture

The Department was established in the year 1993-94. The first three batches (total 40 students) have already Graduated and have found gainful employment and some of them gone to USA for higher studies. This year all 14 students of 1996 batch are expected to Graduate and most of them already secured jobs. New senior faculty members have joined the Department during 2000-2001. During December 2000, an educational tour to Rajasthan for more than a week was Organised and the students studied and observed both Historical and Modern Buildings and Structures.

The students also participated in ZONASA (Zonal National Association of the Students of Architecture) competition at VIZAG where OUR students won numerous top prizes.in many competitions. The students have also been participating in different National and International design competitions.

The Department has maintained a library of its own. More new books have been added. Some important National and International Architectural Journals are presently available in the Central Library. More Journals and Books are in the process of purchase.

The first quarterly Newsletter of the Department is in the Process of Printing, which is replacing the Department Annual Magazine.

# On Going Research Projects/ Consultancy Work:

The following projects submitted by the Department are under consideration of AICTE and UGC:

- Conservation Strategy for Terracotta Temples of Eastern India.
- Creep Behaviour of Glass Fibre Reinforced plastics.
- Regional Network of Ranchi in Chhotangpur plateau.

#### Laboratories established and equipment's added during the year

The following equipment were added during this session:

- In the central computer lab, all 42 computers have been loaded with AutoCAD 14 other important software, like 3D Studio. Auto Desk, etc., are needed soon.
- Department of Architecture has set up a "Model Marketing workshop". In first stage we have Nine different machines. A course on Model marketing is introduced in the new Syllabus. In future all the Students of Department will have access to the workshop for their Designs Models.

# National Seminars, Colloquium Conducted In The Department:

- 1. A Talk On "Urban Design" by Prof. D.P. Mallik, Retd. Professor from Bengal Engineering, Shibpur.
- 2. A Talk "on Conservation in Architecture" by Prof. Manju Halder H.O.D. Department of Architecture, Bengal Engineering. Shibpur.
- 3. A Talk on "HVAC System layout based on a Five Star Hotel" by Sri O.P.Malviya, G.M. (Engg.) ITDC.
- 4. A Talk on "Housing Shortages and Approaches for Alleviation at Hyderabad" by Mr. Yogesh Kumar, Practising Architect, Lucknow.
- 5. A Talk on "Application of Gypsum Products in Interior Design" by Mr. Atul Garg, India Gypsum Limited, Calcutta.

#### Achievement of Faculty Members:

Prof. Manjari Chakraborty, Associate Professor of the Department has received a Financial Award (Career award for young teachers) of Rs 4 Lacs From AICTE to do her Ph. D. Rsearch work.

#### Department of Bio-Medical Instrumentation

The Department has been steadily processing under the untiring efforts of teaching faculty and supporting staff. Apart from teaching and research work. With the existing facilities of sister developments. A new laboratory for carrying work on "Bio-signal acquisition" experiments has been set up.

#### Department of Master in Information Science

The course structure and syllabus of courses of M.Sc. (MIS) were revised and upgrade to meet the challenges in Information Science.

#### Department of Civil Engineering

The Department offers undergraduate, Degree course full time students, a post graduate degree course with soil mechanics as specialisation as full time scholars, and a post graduate degree courser with structural engineering as a specialisation as continuing education for working engineers. The Department also offers adequate facilities for research work. The faculty members are actively engaged in research and consultancy in which all Departmental students have ample opportunity of active involvement. Both Under-Graduate and Post-Graduate students are trained in Computer applications in civil engineering problems and latest software are made available to them. Major areas of current research in the Department include composite materials, soil-structure interactions and deep foundation system, magneto-hydrodynamics.

The material testing laboratories including concrete laboratories, Road materials laboratory, Rock mechanics laboratory, Soil mechanics laboratory, Environmental laboratory, etc. are all well equipped for all sorts of testing satisfying all requirements of Indian Standard Codes. Hydraulics laboratory and Structural engineering laboratory are well equipped for conducting experimental research work. Survey laboratory contains total station equipment suitable for advanced geodetic survey work.

The Department is identified as an independent monitor for Pradhan Mantri Gram Sadak Yojna launched by the ministry of Rural Development Nationwide to provide rural connectivity to National road network. The Department will act as a state representative of the Ministry for

quality checking and technical support for the state, Jharkhand. The project is to be implemented by the State Government through Department of Rural Development.

Prof. A. K. Sinha, a faculty members of the department received Ph. D. degree in July, 2000 from Indian Institute of Technology, Kharagpur. Six research scholars are working in the department for their Ph. D. programme in different areas like soil-mechanics, Hydraulics, Structure and environmental engineering.

Prof. S. Sengupta is working as a member of National Technical Supporting Group to promote Cost effective Technology in Housing sector through DPEP.

# On Going Research Projects/ Consultancy Work:

The Department had taken up and continuing work on two major research project of total cost of about Rs. 80.00 lacs in collaboration with Coal India Ltd., Ranchi:

- 1. Utilisation of overbueden materials through modification of Physico-mechanical properties for the construction of haul roads.
- 2. Optimisation of ambient air quality monitoring networks and application of mathematical models of air pollution control in North Karanpura Coalfields under Central Coal Field Ltd.

# Equipment's added during the year:

Equipments added to the Departmental laboratories are Tar-Viscometer, Float Test Apparatus, Abel Flash Point Apparatus, Cloud & Pour Point Apparatus, Universal Penetrometer, Profilograph, Benkelman Beam, Centrifuse extractor, Hubbard Field Test apparatus, Dynamic Cone Penetrometer and ductility Testing Apparatus.

# National Seminars, Colloquium Conducted In The Department:

The Department Organised the following activities in this year for Under-Graduate and Post Graduate Students:

- A lecture on Information Systems and their roles in Career Building.
- An educational tour to Getalsul Dam and Rajrappa Coal Fields.
- A seminar on Modern Trends in Concrete Technology with special reference to Admixtures.

## Department of Computer Science & Engineering

#### Equipment's added during the year:

We have created a tutorial lab which consists of 60 Nos. Pentium – III, 850 MHz, 128 MB SDRAM, 40XCDROM, 1.44 MB FDD, NIU Card, 15" Color Monitor networking accessories. This will provide students online study on a particular subject through learning CD's.

Installed 120 Nos. COMPAQ systems with 700 MHz, 64 MB RAM, 8.2 GB HDD, CD-ROM Drive, 1.44 MB FDD, NIU Card, Window 98, 15" Color Monitor.

#### Academic Innovations, Research & Development

- (i) The Department has initiated a set of high valued learning materials in the area of Web Technology. These materials are presently being used in our 6 month's certificate course in Web Technology at Lalpur Extension Centre, Ranchi.
- (ii) The Department has taken up courses for CDAC in the area of Advanced
- (iii) Computing through Ministry of Information Technology, New Delhi. The batch joined in Jan. 2001 will be passing out in July 2001.
- (iv) The department received a grant of Rs. 3.00 Lacks from All India Society of Technical Education For Research & Development.
- (v) One week course on Fundamentals of PC operation and application was organized for the Industry Department, Govt. of Bihar., Patna.

# National Seminars, Colloquium Conducted In The Department:

- Certificate course in Web Technology (6 months) will be completed in June 20, 2001.
- PreDAC course for 10 weeks from CDAC, Pune will be completed in July 2001. Students of BCA participated in the Annual Cultural Fest organized at NIFT, Ranchi, March 2001.
- The ACM chapter organized three seminars during Feb. April, 2001.

#### Students activities:

We have formed a chapter of Association of Computing Mechinary U.S.A in Jan. 2001 which will benefit students for International & on line access for ACM journals. Two students of BE – VIII were awarded merit certificate in IBM's quiz contest held at IIT, Kanpur. Feb. 2001.

#### Department of Electronics & Communocation Engg.

#### Laboratories established:

The Department has modern Laboratories and support facilitates in all major areas of electronic and communications. These include-

- Instrumentations, Analog and Digital Comminications, Digital electronics and integerated circuits, Microprocessor, Fiber optics communications, Image and speech processing, Telivision, Industrial Electronics, PCB design and testing.
- The fiber optics labotatory is equipped with LED and leader diod sources ,O/E and E/O converters , powermerters , optical couplers and attenuators, optical video and data links ,Wdm, monochrometer, SM/ MM tapered Eridium dopped / fibers .
- The digital communication laboratory is well equipped with PCM, DM, signal sampeling and reconstruction, carrier modulation and demodulation, pulse amplitude modulation, AM and FM working modules.
- A scalar network analyser with plotter going to 22 GHz. Spectrum analyer spanning 9 KHz to 22 GHz range. Sweep oscillators for 5.9 to 12.4 GHz, 22 GHz microwave frequency counter milliwatt and power-meter support R&D work in the microwave area.
- For PIII 933 MHz computers supports the research work in the PCB design, VLSI design and Image processing area.

# Equipment's added during the year

Laboratories established and equipments added during the year:

35 Microprocessor kits have been added in the year 1999

# Academic Innovations, Research & Development

- "Robotic Vision for Automating Product system" by Dr. D. Pal, sponcered by UGC.
- "Use of non linear Photorefractive material in fiber interconnections" by Prof. S. K. Ghorai, sponcered by UGC.
- "High sensitive Interformation and Distributed Fiber Optic Sensor" by Prof. S. K. Ghorai, sponsored by AICTE.

#### National Seminars, Colloquium Conducted In The Department:

Departement of Electronics & Comm. Engg. With the Dept. of Mathematics conducted a National seminar on "Advanced Mathematical tools for Antenna theory & Design" From Jan. 16 to 18, 2001.

#### Students activities:

4 Sudents activities – special prises won at national / international technical seminars etc.

#### Other Points:

- In the year 2000 about 35 projects have been completed by UG & PG students on Instrumentation, Communication, Microwave, image processing and Mobile communication.
- Virtual class room has been established to teach in the Dept.. Digital Image Processing and Digital Signal Processing.
- Prof. M. Puri, presently engaged in book writing project on title "Electronic Communication Systems" for ISTE, New-Delhi for Degree level Engineering Colleges.

#### Department of Electrical & Electronics

The Department has been steadily progressing under the untiring efforts of teaching faculty and supporting staff. Apart from teaching and research work, industrial projects and renovation of laboratories have been undertaken during this period.

## On Going Research Projects/ Consultancy Work:

Research Industrial ongoing projects, projects completed in the term, consultancy works.

- Control System for Desired Tension/Compression Rolling in Continuous Hot Rolling Mill
- Mobile Mine Winder Repair project

The following projects are in advanced stage

- Control of Dynamical System Using Neural Networks and Fuzzy Systems
- Study & Design of Intelligent Observer & Controller for Induction Motor Control

## Existing Central Facilities:

Existing Central facilities which desire emphasis indicating developments during the session.

Development of a computer aided design lab as well as a High Tech. Process Control Lab necessitating software like MATLAB and its toolboxes and workstations.

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Laboratories established and equipment added during the year.

The following equipments have been added in the past two years which were procured under different project grants.

- a) PC Wipro 3
- b) PC Vintron 3
- c) DSP kit + data acquisition
- d) Matlab 5.2
- e) Matlab simulink real time workshop
- f) Dspace ACE kit
- g) Unidrive (4 KW Drive module)
- h) HP scanjet
- i) Different electrical components for developing power system lab.

## Academic Innovations, Research & Development:

Various attempts in different directions have been initiated in the last academic year for the academic improvement of students and faculties.

New Courses Introduced

In BE level

- a) Fuzzy logic control
- b) Introduction to information technology

In ME level

- a) Optimization techniques in engineering design
- b) Fuzzy logic control

In lab experiments, digital signal processing kits TMS320Cxx have been introduced for both PG and UG students. Power systems lab has been developed in the last year.

We are in the process of developing power system and electric drive lab, high voltage lab and advanced instrumentation lab. These are meant for serving the testing and calibration of electrical instruments and machines.

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### Research Activities:

Induction motor control by using dspace control kit is initiated in last year and the progress by this time has been reported to a reputed journal.

Research activities on economic scheduling of thermal units in power generation are on progress. Economic scheduling by GA has already been done and reported to a journal. Object orient programming in power systems has also been started.

Induction heating system in home appliances has been developed in the last year.

National Seminars, Colloquium Conducted In The Department:

The following two courses are conducted by the department

- (i) Short term course on Neural Network, Fuzzy Logic, Genetic Algorithm, Parallel Processing for the faculties of the Institute.
- (ii) Short term course conducted by Dr. B. M. Karan, Dr. T. Ghose and Mr. P.K. Upadhyay of the department for the engineers of RDCIS, SAIL, Ranchi.

### Students' activities:

Two of the students (Mahesh Sundram and Sumantra Das Gupta) presented paper based on their project work at Anna University, Chennai and won the first prize.

### Other Points:

Prof. B. M. Karan: Member of AICTE Accreditation Committee

### Patent Filed: (Prof. P. K. Sadhu)

Patent filed (Complete specification) for the invention of a "A NEW GENERATION INVERTER" for industrial utilization, patent office, Govt. of India dated 06.02.2001.

"A NEW GENERATION INDUCTION HEATING HOME APPLIANCE" - filed on 06.02.2001.

"A INDUCTION BASED FLUID HEATING IN NON-METALLIC PIPELINE" – filed on 06.02.2001.

## Department of Management

The Department has been steadily processing under the untiring efforts of teaching faculty and supporting staff. Apart from teaching and research work, industrial projects and renovation of laboratories have been undertaken during this period.

### Existing Central Facilities:

Department purchased Mathcad Pro Ae Ver 8.0 On CD, Principle of Economics On CD, Financial Analyst On CD, Systat Ver 8.0 On CD.

# On Going Research Projects/ Consultancy Work:

	Title	Sponcor	Principal Investigator
•	A pronged approach for the Management of NPAs of commercial bank for the development of south Chotanagpur region	AICTE	Dr. S. k. Bose
•	An investigation of reasons for Low level of woman Entepreneuship in south Chotanagpur Region	AICTE	Prof.(Mrs.) S. Shivani

# National Seminars, Colloquium Conducted In The Department:

The Department of management organised a two day all India confrence. "Marketing Summit-2000 Excellence through IT Applications "during 15-16 September,2000. About 75 Marketing managers, Executives & Consultents,IT manager and faculty of marketing management from all parts of country was to identify and analyse the strategic alternative available to marketing manager today and given special emphasis on deliberation over the emerging role of information technologies in the marketing functions.

The main themes for discussion were:

- (1) Marketing of service
- (2) Customer delight management
- (3) Marketing research and marketing information system
- (4) Logistic and supply chain management
- (5) Brand management
- (6) Advertising and integerated communication strategies
- (7) Rural marketing .etc.

## Department of Mechanical Engg.

During last one year the Department has progressed in all directions of its activities. New courses in I.T. and Computer Science have been included in the course structure and the Departmental course contents have been updated taking into consideration the present job requirements. More elective papers have been added for specialized learning and also in views of the demand of Railway Specific courses by IRIMEE, Jamalpur.

## Existing Central Facilities:

On the laboratory front, some old machines have been repaired and five Heat Transfer Lab. Equipments have been purchased.

The Department office has added a Scanner and now it is in a position to handle all printing works. The Scanner is also being used for drawing office purpose.

# On Going Research Projects/ Consultancy Work:

- Department also received one UGC project "Correlation of Micro-structural Characteristics
  with Stress-induced magnetic and electromagnetic effects in materials" under the Thrust
  Areas and work on the project is also progressing satisfactorily.
- As a result of above workshop, large number of faculty member of the Institute were selected as Expert on the Accreditation Committee of AICTE.

# Academic Innovations, Research & Development:

- Faculty members of the Department were actively engaged in academic works in terms of taking expert lectures in other institutes, arranging lectures under the algies of Institution of Engineers, etc.
- Professor Arbind Kumar has received his Ph.D. degree from Ranchi University. Congratulations to him.
- Department also created a cell Consisting of Prof. S.K. Sinha and Prof. G. Pathak. for arranging for Industrial Training to the students and it has done a commendable job.
- The Department took initiative in adding number of books in the Library. Also to help researchers in various fields of Mechanical Engineering Prof. B.N.Giri has become the member of ASME and the Journals received by him would be sent to the Library for the use of faculty and students.

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- The Department deputed a faculty to IRIMEE, Jamalpur to help them in running the courses smoothly. It also deputed a faculty with Exhaust Gas Analyser to participate in the annual function of IRIMEE, Jamalpur.
- The Department, like every year got number of undergraduate and Post Graduate projects completed.
- During the session 8 (eight) students received M.E. degree in Mechanical Engineering and they got placement in blue-chip companies.
- Almost all B.E. students of the Department got jobs through the campus interviews and their performance in placement market was exceedingly well.

## National Seminars, Colloquium Conducted In The Department:

- The Department arranged a one day workshop on Institute-Industry Interaction and it was highly successful as number of Industries participated. The Department is trying to implement the recommendations of the seminar in revamping its course contents and making arrangements for exposure to practical aspects of the courses in Mechanical Engineering to the students.
- In the field of Projects and research work it is heartening to note that two faculty members registered for Ph.D. during the session and their work is progressing satisfactorily.
- Department also received one UGC project "Correlation of Micro-structural Characteristics with Stress-induced magnetic and electromagnetic effects in materials" under the Thrust Areas and work on the project is also progressing satisfactorily.
- AICTE Sponsored Eastern Regional workshop on Accreditation was arranged by the Department in the month of November. More than 60 Heads of Technical & Management Institutions and Seniorr faculty members attended the workshop and it was considered well organized and most interesting workshop.
- As a result of above workshop, large number of faculty member of the Institute were selected as Expert on the Accreditation Committee of AICTE.

### Department of Pharmaceutical Science

### Existing Central Facilities:

Existing Central Facilities which deserve emphasis encluding development during the session:

- 1. HPLC
- 2. HPTLC
- 3. IR
- 4. DSC
- 5. CHN Elemental Analyser

# On Going Research Projects/ Consultancy Work:

The research activities in the department are boosted up due to sanction of a few of the New Research Projects by various funding organizations. The on going projects are:

- U.G.C. project on Isolation and Identification of Mycotoxins and Mycotoxin Producing fungi and Agricultural Products and their Pharmaceutical Studies Dr. D. Sasmal.
- A.I.C.T.E. projects entitled "An Alternative Therapy for Kala-zar by Herbomineral Sources" Prof. N. K. Singh.
- World Bank funded project "Conservation of Forest by better utilization of Euclyptus Wood" Prof. S. P. Bhatnagar.
- U.G.C. project on "Preparation of Edible Grade Pongamia Pinnata Seed Oil and ots Toxicological Studies for Probable Utilization in Pharmaceutical Industry" Dr. S. P. Basu (Principal Investigator), Dr. D. sasmal, Prof. B. N. Sinha.
- U.G.C. project on "Standardisation and quality Control of Some herbal Drugs"-Recommended by by WHO for Re-investigation Dr. S. Jha (Principal Investigator) & Dr. S. P. Basu.
- A.I.C.T.E. project- "Modernisation and Removal of Obsolescence of the Laboratories (MODROB) ------
- A.I.C.T.E. project- "New Anticonvabant Drug from Natural sources and search for Better active Molecule Through Computer aided Drug Design" Dr. S. P. Basu.
- A.I.C.T.E. project (R & D) "Ethno-botanical Study of Antidiabetic Plants of Ranchi district" Dr. S. Jha.

## National Seminars, Colloquium Conducted In The Department:

- State level Golden Jubilee Celebration by Department of Pharmacy Council of India (November, 5,2000)
- AICTE-ISTE Sponsored Short=Term Training Programme (STTP-2 weeks) on recent advances in Pharmaceutical Sciences and Costematic Technology, November 27 to 9 December 2001.
- Workshop on Bio-Informatics and Bio-Technology and its Horizon, April 16<sup>th</sup> to 19<sup>th</sup> 2001.

## Academic Innovations, Research & Development:

### Under World Bank Aided Project:

Use of juvenile wood like Eucalyptus infabricating various furniture and other joining item was successfull demonstrated. It was under the world Bank aided project sanctioned to Prof. S. P. Bhatnagar. Distinguished visitors to the Medicinals plant Research farm highly appreciated the technology adopted for the purpose, as its popular use is bound to save forest and environment.

Department of Pharm. Sciences organised a seminar sponsored by Jharkhand govt. for the cultivation and utilization of Medicinal and Aromatic Plants in Jharkhand State. The Govt. has assured to give the financial support to B.I.T. for demonstration and marketing of the Herbal drugs cultivated in this region.

### Students' activities:

- Mr. Vivek Kapoor of B.Pharm. 1995 Batch has Awarded Gold Medal for securing 1<sup>st</sup> position.
- Mr. Abhishek Sinha of B.Pharm. 1996 Batch has Awarded Gold Medal for securing 1<sup>st</sup> positioning March 2001at hyderabad.

# National Seminars, Colloquium Conducted In The Department:

Co-ordinator:AICTE Sponsored Short Term Training Programme organized through ISTE on "Recent Advances in Pharmaceutical Sciences and Costematic Technology" during 27<sup>th</sup> November to 9<sup>th</sup> December 2000 at Department of Pharmaceutical Sciences, B.I.t. Mesra, Ranchi.

## Department of Polymer Engg.

## Existing Central Facilities:

The Department of Polymer Engineering presently offers a 4-year undergraduate programme leading to B.E. (Polymer Engineering). The first batch of students completed the course in this academic year 2000-2001. The Department of Polymer Engineering was engaged in developing several new courses, both theory and practical. Apart from this the faculty members were engaged in Research, Project, Consultancy and Testing work.

The Department has well established Laboratory and Workshop facilities for teaching, research and consultancy in various areas of Polymer Engineering. The Polymer Characterization and Testing Laboratory facilities include Wide Angle X-Ray Diffractometer-RIGAKU. IR Spectrophotometer-Perkin Elmer, Cone and Plate Rheometer-RT20-HAAKE, Tensile Testing machine-KMI. Environmental Stress Cracking Resistance Tester. DIN Abrader, Compression Set Apparatus. Impact Tester etc. The Polymer Processing facilities include HAAKE Rheocord 90 with mixer, single screw extruder and capillary rheometer, Injection moulding machine WINDSOR ST25, Compression Moulding Machine, Vacuum forming Machine, Two Roll Mill, HOT Press etc..

Laboratories established and equipment added during the year.

- The first batch of students of B.E.(Polymer Engineering) completed their course in this academic year 2000-2001. Several Laboratory Courses were introduced for the first time namely Elastomer Technology Laboratory, Chemical and Polymer Reaction Engineering Laboratory, Polymer Blends and Composites Laboratory, Die & Mould Fabrication Workshop, and Design Laboratory.
- The Laboratoy and Workshop Facilities were augmented by addition of the following equipments: Shore-A Hardness Tester, Shore-D Hardness Tester, Dial Gauge Micrometer, DIN Abrasion Tester, Compression Set Apparatus, Tensile Testing machine KMI, Izod Impact Tester.

# Academic Innovations, Research & Development:

 Several new courses were developed in the Academic year 2000-2001 namely Polymer Reaction Engineering, Polymer Rheology, Elastomer Technology, Surface Coating & Adhesive Tehnology, Polymer Blends and Composite, Fibre Science & Technology. The new laboratoy courses were Elastomer Technology Laboratory, Chemical and Polymer Reaction Engineering Laboratoy, Polymer Blends and Composites Laboratory, Die & Mould Fabrication Workshop, and Design Laboratory, Polymer Recycling, Advanced Polymer Characterization, Polymers for Biomedical Applications.

Report-2001

- The Department conducted a one day Laboratory Course on Polymer Identification and Processing for B.Tech. 3rd year students of "Metallurgical and Materials Engieering" of NIFFT, Ranchi.
- The Department also carried out testing work "PVC Cable Sheathing Testing" for CCL, Ranchi.
- The faculty guided several Under Graduate Research Projects in the areas of Inter Penetrating Network-IPNs, Elastomer Technology, PET Recylcing, Polymer Rheology.
- Project Fellows were engaged in the UGC Funded projects "Development of injection moulding grade polyethylene/polystyrene (PE/PS) and polypropylene/ polystyrene (PP/PS) Blends with improved weldability" under Mrs Sudipta Goswami Sharma, Asstt Professor, and "Rheological Studies Commingled Plastics Recyclates" Under Dr(Mrs) M. Mukhrejee, Professor.
- Mr. Sanjay Datta, Assistant Professor, is conducting an AICTE Funded Project "Development of Grooved Rubber Pads for Indian Railways".

### Students activities:

The first batch of B.E. Polymer Engineering Students graduated in the academic year 2000 - 2001. Four of the students have been placed through campus selection by TELCO, and Haldia Petrochemicals Ltd.. One of the students Sri Anirudha Singh obtained 2nd position in GATE examination and has opted for higher studies.

Two students of Eighth Semester, Sri Sushil Lohia, and Sri. Navin Shekhar participated and secured First Position in MATERIALA - I, for presentation of the Technical Paper on "Carbon Fibre Composites", during MATRIX 2001, an All India Technical Symposium, organised by the Department of Metallurgical & Materials Engineering, University of Roorkee, on 24th and 25th February 2001.

# On Going Research Projects/ Consultancy Work:

- Mr. Sanjoy Datta, Assistant Professor, is acting as prime invastigator of the project "Development of Grooved Rubber Pads for Indian Railways" sanctioned by AICTE, under R & D scheme.
- An UGC funded Major Project entitled, "Development of injection moulding grade polyethylene/polystyrene (PE/PS) and polypropylene/ polystyrene (PP/PS) Blends with improved weldability" is in progress under the supervision of Mrs.S.Goswami. Assistant Professor.
- An UGC Project "Rheological Studies of Commingled Plastics Recyclates" under Dr.(Mrs).M.Mukherjee, Professor, is progressing satisfactorily.

## Department of Production Engg.

### Existing Central Facilities:

In today's multi-option market there is greater need for flexible production that can be used on a variety of products, models and styles. Planners for new facilities now want their machines, robots and material handling systems to be integrated into a flexible manufacturing system (FMS). The keyword is "System", FM takes advantage of the flexibility of robots, NC machine tools, industrial logic controllers and microprocessors in creating an over all flexible system.

Realizing this trend of switch-over from Hard automation of 1950s to flexible automation in today's industry, a Flexible Manufacturing Systems 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 that give an insight to students regarding fast changing manufacturing scenario in today's industry. The equipment and machines installed in the laboratory include —

- 1. CNC Trainer Lathe (EMCO)
- 2. CNC Trainer Milling Machine (EMCO)
- 3. A complete FMC comprising of
  - a) TRIAC CNC Milling Machine
  - b) ORAC CNC Trainer Lathe
  - c) Conveying System with Conveyor
  - d) Two Move Master Robots
  - e) PC and PLC Control System for coordinating control actions of different elements (DENFD)
- 4. Co-ordinate Measuring Machine (CMM-KEMCO)
- 5. Flexible Machining Cell Comprising of
  - a) Machining Center
  - b) Linear Movement continuous path robot
- 6 Single Spindle Automatic Lathe (Model D-25)
- 7 Hydraulic Universal Cylindrical Grinding Machine (Model U127/500)
- 8 Tool Dynamometers
- 9 Breadth by Breadth Exercise Test system

# Equipment Added During the Year:

- 1 Water jets cutting equipment
- 2 Mechatronic Press (100 tons)

## Academic Innovations, Research & Development:

- 1. The following are the areas of Research & Development / interest of the Faculty Members
  - i) Agile Manufacturing
  - ii) Manufacturing Automation & Robotic Vision
  - iii) Effect of Manufacturing Parameters on wear and tear of machine tools.
  - iv) Work Design and ergonomics
  - v) Water Jet Technology

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- vi) Formability of Sintered Preforms
- vii) Hydrodynamics of metal forming processes
- viii) Waste free manufacturing
- ix) Multi object process planning
- 2 An in-house training programme has been conducted for workshop staffs of BIT, Mesra to make them aware of recent changes in manufacturing scenario
- 3 Department has conducted a short term course in collaboration with Institution of Engineers (India), Jharkhand State Centre on "Rapid Response Manufacturing" During 23<sup>rd</sup> & 24<sup>th</sup> September 2000

# National Seminars, Colloquium Conducted In The Department:

- Department has conducted a short term course in collaboration with Institution of Engineers (India), Jharkhand State Centre on "Rapid Response Manufacturing" During 23<sup>rd</sup> & 24<sup>th</sup> September 2000
- 2. Department has conducted Fourteen National Convention of Production Engineers & National Seminar on "Mechatronics in manufacturing Process" in collaboration with Institution of Engineers India Ranchi Local center During March-2000

### OTHER POINTS:

With active participation of the faculty of the Department, the progress of the work on the following ongoing projects are at advanced stage -

- a) Development of Infrastructure Facilities for carrying out Design, Manufacturing and testing of specially Forging Dies.
- b) Productivity Enhancement of Rural Artifacts Manufacturing
- c) Optimum Facility Design
- d) Technology and application of Sintered Preforms

### Department of Remote Sensing

### Existing central Facilities

An image processing and GIS Lab. Has been established in the R&D building of the Institute. Four Intergraph TD 260 desktops and one Wipro Voyager machine has been procured and installed. Department has also purchased Magellan Promark V Global Positioning System (GPS), Umax Scanner. Department has also procured software for GIS, Cartography and Digital Image Processing such as ArcInfo 7.2, Image Analyst, Modular GIS Environment (MGE), I/RAS, Geomedia Professional, Geomedia, Microstation SE, Oracle 8.0.

### On Going Research Projects/Consultancy Work:

- EIA Study for 2500MW Hydro-electric power project on Subansiri river (A.P.) with MECON-NHPC.
- EIA Study for 2000MW Hydro-electric Power Project on Kamla river (A.P.) with MECON-NHPC

### Academic Innovations, Research & Development:

India as part of its strong space programme has launched several remote sensing satellites for mapping and monitoring the natural wealth of the nation. In future, many other satellites with better resolution and enhanced features are planned. This calls for a large number of trained personnel to take up the above mission. Looking to the growing significance and of Remote Sensing (RS) and Geographic Information System (GIS), a one and a half year M.Tech. Programme in Remote Sensing has been introduced from July 1997 at B.I.T., Mesra. The course is designed to introduce Remote Sensing and GIS techniques- principles, digital image processing of satellite data, and its application towards mapping and management of various natural resources.

The third batch (1999-2000) of M.Tech. students has passed out this year. The students did their M.Tech. Thesis work in various national and international organizations such as National Remote Sensing Agency (NRSA), Hyderabad, Regional Remote Sensing Service Centre (RRSSC) Jodhpur, Bangalore. The topics of the thesis work included Landslide Prediction, Decision Making, Road Allignment, Watershed Modelling, Wasteland Mapping, Hydrological Investigation, Pollutant Mapping etc.

The faculty members of the Department and M.Tech. students of 2001 batch are actively engaged in Research work in various areas like development of Geographic Information system (GIS) for B.I.T. campus. GIS for the transportation network in Ranchi city, Decision Support System (DSS) for Jharkhand state etc.

## Department of Space Engg and Rocketry.

The Department is actively engaged in modernisation and development of its various laboratories. The faculty members have carried out and guided R & D work in the areas of Aerodynamics, Propellant Technology, Combustion, Rocket Propulsion and Composite Materials. Based on the infrastructure and the expertise available, a new Programme, namely M.Tech in Fuels and Combustion has been drafted. The Syllabi of the Courses have been reviewed by the experts of AICTE team.

### Academic Innovations, Research & Development:

The research work carried out during the period of Report is summarized below:

### Aerodynamics Division:

Extensive work has been carried out in the field of high speed, viscous / inviscid and unsteady aerodynamics in the presence of protrusions of different sizes on forebody and aftbody of the PSLV model. The investigations included sound pressure level spectrum, r.m.s. sound pressure level and r.m.s. deviation in pressure ahead and on the protrusions, which is an effective practice to describe the flow unsteadiness and separation. A set of Peizo-resistive ultraminiature differential Kulite pressure transducers, integrated with OROS high speed data acquisition system with real time FFT analyzer, only of its kind in the Eastern region, have been employed in the above-mentioned investigations.

### Propellant Technology Division:

The research and development work on Eco-friendly hydroxy-terminted polybutadiene-ammonium nitrate composite solid propellants has been carried out, and a number of formulations have been developed. The burning rate studies on the newly developed propellant systems have been conducted in a pressure range from ambient to 70 KSC. A wide range of burn rates achieved from 0.3 to 25 mm/s reflect the potential of these compositions for applications in clean gas generators, combustion initiators for liquid rocket engines, and for solid propulsion devices. Thermo-gravimetric studies have been conducted to study the decomposition characteristics of prominent solid oxidisers with and without catalysts. Novel catalysts, which accelerate the decomposition process, have been identified.

The Differential Scanning Calorimetric investigations on solid propellants have been attempted to generate thermo-chemical data under the simulated conditions of condensed-phase combustion. The results would be extremely useful in a unified approach for combustion modelling.

Efforts have been initiated to study the flow behaviour of thixotropic heterogeneous monomethyl hydrazine-based gelled propellants, in experimental conditions, as encountered in the real time injector flow during propellant injection in liquid rocket engines. Ignition and combustion studies have been carried out on Formalazine, a potential hybrid rocket fuel. The fuel has been found to be self- igniting with catalyzed red fuming nitric acid. This fuel is found to appear to be the best among all the hybrid fuels reported in literature on energetic grounds, as evidenced from the combustion characteristics.

### **Rocket Propulsion Division**

A new Ballistic Evaluation Motor has been designed and developed to carry out evaluation of ballistic parameters of solid propellants. The measurement of combustion chamber pressure at the head end and the nozzle end was done, and the firings were done remotely with the help of Auto Console Firing Unit, which has recently been installed in the Department. The display of pressure and thrust profiles with time were recorded and evaluation of characteristic parameters was done with the help of the developed software. Extensive work has been carried out to find the effect of propellant grain size on the burning rate of PVC-AP solid propellant. The burn rate data have also been compared with Crawford-burner data.

Significant progress has been made on design, fabrication and testing of herringbone- grooved journal bearings, meant for supporting the high speed (of the order of  $10^5$  r.p.m.) turbine rotor of a gas liquefaction plant. The proposed bearing system will be tested by rotating a miniature size turbine using compressed dry air. Earlier designs of the journal and bearing house have been modified, considering the availability of the blow-hole free material and fabrication difficulties. Most of the components have been made by using the existing in-house facilities. The making of herringbone-grooves on the rotor have been successfully demonstrated in the laboratory by chemical milling. A procedure, having many advantages over the conventional methods, is invented to mask the rotor prior to chemical milling.

A computer program using  $C^+$  has been developed for predicting thermal stratification of cryogenic propellants stored in an insulated container. Thermal stratification can cause higher boil-off losses, tank over-pressurisation and propellant outage in the rocket engines. A theoretical model considering node-by-node analysis has been developed to determine liquid temperature, wall temperature, ullage pressure and temperature, and interfacial heat and mass transfer. Work is being initiated for the parametric study using existing experimental data.

## Composite Materials:

Extensive work has been carried out for determination of mechanical and physical properties of advanced composite materials using CFRC and GFRC with bi-directional and uni-directional orientations. Mechanical strength including tensile, compressive, flexural and shear strength, and respective modulus as well as fatigue strength, have been determined. The creep studies have been carried out under adverse environmental conditions. Substantial work has been carried out in the area of residual strength analysis of the composite materials under cyclic and static conditions. Work has also been initiated in the fields of buckling studies of stiffened composite plates and the strength characterisation of adhesive lap joints of CFRC.

National Seminars, Colloquium Conducted In The Department:

#### Technical Events Conducted:

The 15th National Convention of Aerospace Engineers and National Seminar on "Aerospace and Rocket Technologies: Challenges Ahead" (AeRoTeCh--2001) was organised at the Department in collaboration with The Institution of Engineers (India), Ranchi Local Centre on 23rd - 24th February 2001. Dr. A.K. Chatterjee, Professor and Head, was the Organising Secretary. Dr. A. Sivathanu Pillai, Distinguished Scientist and Chief Controller of R&D,

DRDO, Ministry of Defence, Govt. of India inaugurated the Convention and also delivered the Sarabhai Memorial Lecture on "Advances in Aerospace Technology". Prof. S. Parthan of IIT, Kharagpur and Mr. A.K. Chakrabarti, Group Director, Research Centre Imarat, DRDO, Hyderabad, delivered the Invited Talks.

Regional Workshop on Patent Awareness was organised at the Institute in collaboration with Bihar Council of Science & Technology, D.S.T., Govt of Bihar and Technology Information Forecasting and Assessment Council, D.S.T., Govt of India on 4th-5th November 2000. Dr. J.N. Mishra was the Co-ordinator and the Organising Secratariate comprised of Dr. A.K. Chatterjee, Prof. S. Sengupta and Dr. D. Sasmal. Dr. V. Siddhartha, Adviser (ER & PR), DRDO Head Quarters, New Delhi delivered the Inaugural Address - "Understanding Some Misunderstanding on the Role of Intellectual Property Rights in Technology and Its Transfer". Shri N.R. Seth. Dy. Controller of Patents and Designs presented the Key Note Address. Besides, Shri D.K. Rahut, Dr. Amitabha Chakraborti and Shri G.P. Roy, Examiners of Patents & Designs, delivered Lectures.

## Achievements of Faculty Member:

Dr. A. K. Chatterjee, Professor & Head, was elected to the council of the Institution of Engineers (India) and was made Chairman of the Aerospace Engineering Division Board.

### On- going Research Projects/Consultancy Work:

Details of Sponsored Projects being progressed by the Department/New Project Proposals submitted are as follows:

S.No.	Name of Investigator(	s) Title of Project	Agency
I	Dr.J.N.Mishra/	Transonic Buffeting : Shock-	ISRO
II	Dr.A.K. Chatterjee Dr.Mohan Varma	Boundary Layer Interaction Combustion Studies on Eco-friendly Composite Solid Propellants	UGC
III	Dr.Mohan Varma	Studies on Flow Behaviour of Heterogenous Gelled Propellants	AICTE
IV	Dr.T.K.Nandi	Development of Herringbone- grooved Bearings for Cryogenic Turbo Expander Rotors	DST
V	Dr.A.K. Chatterjee Dr.Rajesh KK	Ageing Studies on Catalysed AP/HTPB Composite Propellants	DRDL
VI	Dr. A.K. Chatterjee Dr. S.K. Jain Prof. P.K. Dash	Simulation of Ablation Model of Insulating Materials with Developed Software	DRDL

Other Points:

Patents:

(i) Obtained:

I. Dr. J.N. Mishra : A Device to Measure Unsteady Pressure

(ii) Under Consideration:

I. Dr.J.N.Mishra : High Speed Deviation Motor

II. Dr. J.N.Mishra : Device to Measure R.M.S. Deviations in Flow

Angle

III. Dr. J.N. Mishra : A Device to Measure Circumferential Unsteady

Pressure

IV. Dr. J.N. Mishra : A Device to Measure R.M.S. Flow Deviations

(iii) Applied:

Dr. T.K. Nandi & : A Process for Producing Masked Object for

Neeraj Kumar Chemical Milling

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Participation of Faculty in National & International Conferences/ Seminars to present papers and awards won

## Department of Applied Mathematics

### Conference and Seminar

- Dr. N.C. Mahanti participated in Mathematics day and delivered an invited talk on Mathematical modelling in applied sciences organised by department of Mathematics, St. Xaviers college, Ranchi on 1st February, 2001.
- Dr. N.C. Mahanti attended National Conference on "The Role of Mathematics in new millenium: theory and applications" and delivered invited talks on (1) Impact of residual stresses on the propagation of earthquake waves in buildings (11) Shear waves in a fluid saturated porous plate, organised by the Department of Mathematics Jadavpur University, Calcutta during 23rd to 25th March 2001.
- Dr. S.K. Samal attended International Seminar ICRAM 2000 on the "Surface Wave in a liquid layer bounded below by elastic half space and above by liquid layer" organised by the Department of Mathematics I.I.T., Kharagpur, during 20th to 22nd December, 2000.
- Mrs. A. Pradhan (Ghorai) participated in the International Seminar ICRAM 2000 organised by the Department of Mathematics I.I.T., Kharagpur, during 20th to 22nd December, 2000.
- Mrs. A. Pradhan(Ghorai) attended the National Seminar on "Advanced Mathematical tools for antenna theory and design" organised by the Department of Mathematics and Electronics and Communication Engineering B.I.T. Mesra during 16th to 18th January, 2001.

### Workshop:

• Dr. S.K. Jain attended INDO-US workshop on" Problem in Elastic Vibrations, Smart structures and their solutions technologies" Roorkee University, Roorkee during 2nd to 4th January, 2001.

## Department of Applied Mechanics

### Conference and Seminar

 Prof. Rampal Singh participated in the National Seminar on "Application of Mathematics in the Social and Industrial Sectors in the Next Millennium, organised by the Department of Mathematics during 26th to 27th October, 2000

# Conference, Seminar and Workshop attended by Teachers



### Workshop:

- Prof. Rampal Singh participated in the NCC refresher Technical Training Course in EME held at EME School in Boroda.
- Sri Rajiv Ranjan attended the workshop on Patent Awareness held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.

### Department of Applied Physics

### Conference and Seminar

- Dr. P. K. Barhai attended the All India Vice-Chancellor conference as V.C.S. nominee at Gawahati University, Gawahati during 5th to 7th December 2000.
- Dr. P. K. Barhai attended the National Conference on Agile engineering held at B.I.T., Mesra, Ranchi, 4th to 5th October, 1999 and presented a paper entitled "Plasma Technology and its Applications".

### Workshop

- Dr. P. K. Barhai attended the NBA workshop sponsored by AICTE held at B.I.T. Mesra, Ranchi during 10th to 11th November, 2000.
- Dr. P. K. Barhai attended the workshop on Patent Awareness held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.
- Dr. P. K. Barhai visited the facilities for development and characterization of high Tc superconducting samples at the Cryogenic centre, IIT Kharagpur during 2nd to 3rd December, 2000.
- Dr. P. K. Barhai attended the NBA workshop sponsored by AICTE held at IIT Kharagpur during 12th to 13th January, 2001.
- Dr. S. Konar attended the NBA workshop sponsored by AICTE held at B.I.T. Mesra, Ranchi during 10th to 11th November, 2000.
- Dr. S. Konar attended the workshop on Patent Awareness held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.
- Dr. S. Konar attended the workshop on Advanced Mathematical tools for antenna theory and design" organised by the Department of Mathematics and Electronics and Communication Engineering B.I.T. Mesra during 16th to 18th January, 2001.

- Dr.(Mrs.) S. Kesri participated in the Spring college on Electronic Structure Approaches to the Physics of Materials, held in International Center for Theoretical Physics, Trieste, Itly from 15th to9th june.2000.
- Dr.(Mrs.) S. Kesri visited different facilities of the Cryogenic Lab of the Saha Institute of Nuclear Physics, Calcutta on 24th October, 2000.
- All faculty members of B.I.T. Mesra, visited the various facilities in the Physical Metallurgy Section of RDCIS SAIL, Ranchi on 25th January. 2001.

## Department of Applied Chemistry

### Conference and Seminar

- Dr. B. L. Gupta, and Dr. (Mrs.) Usha Jha delivered invited lectures on 'Rheology' and 'Biomaterials-An Overview' respectively in a AICTE-ISTE sponsored short term programme organised by Department of pharmaceutical Science, B.I.T. Mesra, Ranchi during 27th November to 9th December, 2000.
- Dr.(Mrs.) Usha Jha attended a National Conference on "Tissue Replacement Materials and Biodegradable Polymers" held at I.I.T. Kharagpur during 6th to 8th December, 2000.

## Workshop

- Dr. B. L. Gupta, Prof. B. D. Choubay and Dr. Usha Jha attended the workshop on "Patent Awareness" held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.
- Dr. B. L. Gupta, Prof. B. D. Choubay and Dr. Usha Jha attended the workshop on "Accreditation Awareness" organised by AICTE, held at B.I.T. Mesra, Ranchi during 10th to 12th November, 2000.

### Department of Architecture

### Conference and Seminar

- Prof. N. R. Mandal and Prof. Pawan Kumar participated in a Conference on Visual Communication organised by Indian Institute of Technology, Kharagpur.
- Prof Ajay Khare was Invited to Present a Paper in the International Conference on Bengal Art at Kolkata.
- Mr. Pawan Kumar and Prof. S. P. Bhattacharya presented a paper "planning Consideration in Disaster Prone areas" organised by IEI, Patna.

### Workshop:

• Mr. Pawan Kumar and Prof. S. P. Bhattacharya Participated in Short Term Course on Composite Structure using structural Steel at IEI, Ranchi.

### Department of Civil Engineering

### Conference and Seminar

- Mr V. C. S. Rao attended National Institute for Training of Highway Engineering Sponsored Term Course in Road Sector at the Institution of Engineers (India), Ranchi Center during 15th to21st May, 2000.
- Prof. Gopal Pathak Presented a Paper titled "Role of Heavy Metals in Water Pollution Profile of Coal Washeries and its Management at the 16th Annual International Conference on Contaminated Soils, Sediments and water held at University of Massachusetts, Amberst USA during 16th to 19th October, 2000.
- Prof. Gopal Pathak was invited to participate as a member of the Select group in the round table discussion, was invited to chair the session on case studies, and was invited to present a paper titled, "Restructuring for Sustainability with reference to human cities in an International Conference on Sustainable and Human cities" held at Manila, philppines during 10th to 12th April,2000.
- Prof. Arun Kumar Presented a Paper titled "Joints in Composite Materials" in an International Conference organised by The Institution of Engineers (India) held at Punjab University during 18th to 20th November, 2000.
- Prof. Birendra Kumar Singh attended the workshop on "Patent Awareness" held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.

### Workshop

• Mr Binay Kumar Singh attended Short Term Course on "Advanced in Concrete Technology and Practice" organised by I.I.T. Madras during 18th to 23rd December, 2000.

## Department of Electronics & Communication

### Conference and Seminar

• Prof. B.B. Pal & Prof. D. Pal attended National Seminar on "Method to analysis Elliptical Microstrip Antenna". 2000, Bangladesh.

- Prof. B.B. Pal attended National Seminar on "Complex Resonant Frequency Method to Analysis Rectangular Microstrip Antenna,"2000, Bangladesh.
- Prof. B.B. Pal, attended National Seminar on "On the Analysis of Elliptical Microstrip Antenna," 2000, Bangladesh.
- Dr. N. Gupta, attended International Conference on "Communications, Computers & Devices," organised by Department of E &ECE, I.I.T. Kharagpur during 14<sup>th</sup> to 16<sup>th</sup> December, 2000.
- Mrs. Nisha Gupta & D.K. Gupta, "Constraint Satisfaction Problems in Engineering Electromagnetic" presented in CMSC-99, International AMSE Conference on Computer Modelling, Simulation & Communication, Jaipur (India) from <sup>1st</sup> to <sup>3rd</sup> December, 1999. Selected as "Best of 99" for the Conference AMSE Book, as intimated in July, 2000.
- Prof. D. Pal, "An inexpensive tracking cum distance measurement technique suitable for machine vision based automation of production system," International Conference on Manufacturing, ICM 2000, Dhaka, Bangladesh during 24<sup>th</sup> to 26<sup>th</sup> February,2000.
- Prof. D. Pal, "An inexpensive machine-vision based tracking cum distance measurement technique suitable for shop floor," New Millenium Conference on Pattern Recognition, Image Processing & Robot Vision(PRIPROV), Malayasia, 15<sup>th</sup> to 17<sup>th</sup> May, 2000.
- Prof. S. K. Ghorai, Prof. S. Bashu, Prof. H. Singh and Mr. R. Bhowmick presented, "Effect of Cross-Sensitivity in low coherence optical fiber interferometric sensor," in International Conference on Fiber Optics and Photonics "Photonics 2000", held at Calcutta, during 18<sup>th</sup> to 20<sup>th</sup> December 2000
- Prof. M. Puri, give an invited lecture on "Mobile Communications" organised by Institution Of Engineers local centre, Ranchi during Engineers Day on 17<sup>th</sup> May, 2000.
- Prof. M. Puri attended Authers Conference organised by AICTE & ISTE at S.J. College of Engineering, Mysore, Karnataka from 16<sup>th</sup> to 22<sup>nd</sup> October 2000.
- Prof. B.B. Pal, attended National Seminar on, "Medical Information & Informatics" organised by S.T.T.P. at R.E.C. during 5<sup>th</sup> to 16<sup>th</sup> June, 2000.
- Prof. B.B. Pal, attended National Seminar on, "Neural Network & Advanced Computing," organised by S.T.T.P. at B.I.T. (Bundelkhand, Jhansi), during 18<sup>th</sup> to 30<sup>th</sup> December, 2000.
- Prof. D. Pal, "A Physical layer using FSK suitable for low speed LAN application," Proceedings of Conference on computer Networking & Multimedia (COMNAM-2000), organised by Department of E&TCE, Jadavpur University, Calcutta, during 21<sup>st</sup> to 22<sup>nd</sup> December, 2000.
- Prof. D. Pal, "Application of gyroscopic stabilisation in antenna holding device," XIV National Convention of production Engineers & National Seminar on Mechatronics in Manufacturing Systems, organised by Department of Production Engineering, B.I.T. Mesra during 25<sup>th</sup> to 26<sup>th</sup> March, 2000.

- Dr. N. Gupta. "A New Approach to Method Lines." Presented at National Seminar on Advanced Mathematical tools for Antenna Theory & Design, during 16<sup>th</sup> to 18<sup>th</sup> January, 2001.
- Prof. R. Gupta & Dr. N. Gupta, "Constraint Satisfaction Algorithm in Microstrip Antenna Design," presented at National Seminar on Advanced Mathematical tools for Antenna Theory & Design, during 16<sup>th</sup> to 18<sup>th</sup> January, 2001.
- Prof. S. K. Ghorai, A. Kumar, R. Gaurav, S. Jauhari, "Fiber Optics temperature sensor based on digital signal processing," Proc. Of XXVI National Symposium on optics and Opto-Electronics, held at R.E.C. Warangal, during 4<sup>th</sup> to 6<sup>th</sup> February, 2000.
- Prof. S. Maiti, A. Pradhan, N.C. Mahanti and S. K. Ghorai, "Response of Coircular Fiber Antenna Using Genetic Algorithm," Proc. Of National Seminar on Advanced Mathematical tools for Antenna Theory & Design, during 16<sup>th</sup> to 18<sup>th</sup> January, 2001.
- Dr. J. S. Roy, "Handoff Management for Leaky spots in a simulated mobile environment," Proceedings of Conference on computer Networking & Multimedia (COMNAM-2000), organised by Department of E&TCE, Jadavpur University, Calcutta, during 21<sup>st</sup> to 22<sup>nd</sup> December, 2000.
- Dr. J. S. Roy, "Optimization of gain of a Microstrip antenna using genetic algorithm," Presented in National Seminar on Advanced Mathematical tools for Antenna Theory & Design, during 16<sup>th</sup> to 18<sup>th</sup> January, 2001.
- Prof. Soma Burman, attended conference on "Computer Networking and Multimedia", organised by Jadavpur University Calcutta during 21<sup>st</sup> to 22<sup>nd</sup> December, 2000,
- Prof. Soma Burman attended conference on "Industrial Problems in Machines and Mechanism," IPROM-2000, Nagpur, during 19<sup>th</sup> to20<sup>th</sup> January,2001.
- Prof. S. S. Solanki and Prof. S.C. Goel, "Fuzzy Based Conveying Control" proceeding of National Workshop on "Industrial Problems in Machines And Mechanism", IPROM-2000, Nagpur, during 19th to 20th January, 2001.

## Workshop

• Prof. M. Puri attended the workshop on "Patent Awareness" held at B.I.T. Mesra, Ranchi during 4th to 5th December, 2000.

Department of M.I.S.

## Conference and Seminar

■ Prof. Bhaskar karn attended CALIBER – 2001 at Pune University in March 2001.

 Prof. Bhaskar Karn was selected by UNESCO & NISSAT to attend workshop at University of Mysore on "Digitization of Information Resourses" in June 2001.

# Department of Computer Science

Dr. P. K. Mahanti, Professor & HOD Computer Science is invited to participate and present his research paper entitled 'Hybrid Intelligent System for Forcasting rates' ICCS - 2001 (International Conference on computational Science), Sanfrancisca. California, May 28-30, 2001.

### Workshop

- Dr. G. Sahoo. Associate Professor, participated in Patent Awareness Programme held at BIT, Mesra.
- Prof., S. K. Chatterjee, Assistant Professor participated a short term course at Bengal Engineering College which was sponsored by AICTE, New, Delhi.

# Department of Electrical & Electronics

## Conference and Seminar

- Prof. T. Ghose, S.K. Goswami. "Neural Network based solution of capacitor placements" presented a paper in MATLAB INDIA MILLENNIUM held at Bangalore from 15-17th November, 2000.
- Prof. T. Ghose, R.C.Jha. S.K. Goswami, "Genetic Algorithm Approach to Unit Commitment problem" presented and published in the conference of All India People's Technology held at Kolkata from 9th to 11th February, 2001.
- Prof. T. Ghose, R.C. Jha, D.K. Mohanta, "Microprocessor based variable speed DC series motor control" Presented and published in the proceeding of National Seminar on Machatronic in the Dept. of Production Engg. BIT Mesra from March 25-26, 2000.

## Workshop

- Dr B. M. Karan, participated in XXX Annual Convention & National seminar of Indian Society for Technical Education, Dec. 14-16, 2000.
- Dr.B. M. Karan, participated in Two-day National Workshop on "Industry-Institute Partnership Under Changing Economic Environment", 19-20 Sept. 2000.
- Dr B. M. Karan, participated in Two-day course on "Energy Management and Conservation Strategies for Industries", organized by The Institution of Engineers (India), Ranchi Local Centre on Sept. 9-10, 2000.

- Dr B. M. Karan, participated in Two-day Regional Workshop on Patent Awareness, November 4-5,
   2000 at BIT Mesra, Ranchi.
- Dr. B. N. Das Attended Two-day "Accreditation Awareness Workshop" held at BIT Mesra in Nov. 2000.
- Prof. N. Pathak Attended "Brainstorming session on futuristic development of mathematical models in applied sciences", held on Dec. 6,2000 in the department of Applied Mathematics, BIT, Mesra, Ranchi
- Prof. P. K. Sinha Attended a short-term course on Neural Network, Fuzzy Logic, Genetic Algorithm and Parallel Processing" from 10.12.1999 to 15.12.1999, conducted by the Dept. of EEE, BIT Mesra.
- Prof. P. K. Sinha Attended "Accreditation Awareness Workshop" held at BIT Mesra in Nov. 2000. The workshop was sponsored by National Board of Accreditation, India.
- Prof. P. K. Sinha Attended "Brainstorming session on futuristic development of mathematical models in applied sciences", held on December 6, 2000 in the department of Applied Mathematics BIT,Mesra,Ranchi
- Prof. R. C. Jha Participated in the "National Workshop on HVDC Transmission Technology" organized by Dept. of Elect. Engg. Institute of Technology, BHU, Varanasi, 15-16, May 2000.
- Dr B. M. Karan, participated in Two-day "Accreditation Awareness Workshop" held at BIT Mesra in Nov. 2000.
- Dr B. M. Karan, Attended "Brainstorming session on futuristic development of mathematical models in applied sciences", held on Dec. 6,2000 in the department of Applied Mathematics, BIT, Mesra, Ranchi
- Prof. P.K. Sadhu Attended Regional Workshop on Patent Awareness, November 4-5, 2000 at BIT Mesra, Ranchi.
- Dr. T. Ghose Attended a course on "Computer Aided Power System Analysis" at Central Power Research Institute, Bangalore on 17th Nov. 2000.
- Dr. T. Ghose Attended "Brainstorming session on futuristic development of mathematical models in applied sciences", held on Dec. 6,2000 in the department of Applied Mathematics, BIT, Mesra, Ranchi
- Prof. D.K. Mohanta Attended Regional Workshop on Patent Awareness, November 4-5, 2000 at BIT Mesra, Ranchi.
- Prof. K. Chatterjee Presented paper in the conference of SASESC-2000, held at Deyalbagh, Agra on March 4-5, 2000.

 Prof. K. Chatterjee Presented paper in the conference of Matlab, held at Bangalore on Nov. 15-17, 2000.

# Department of Mechanical Engineering

- Prof. Arbind Kumar Delivered guest lecture on "Potential & exploitation of Non-Conventional Energy Sources" at CRPF Training Centre, Dhurwa, Ranchi.
- Prof. Arbind Kumar Delivered guest lecture on "Problems and Prospects of Hydrogen energy" in the Department of Human Resource Development, Central Coalfields Ltd., Darbhanga House, Ranchi.
- Prof. Arbind Kumar Presented paper entitled "Hydrogen: The synthetic fuel for better tomorrow" in the International Seminar on "Clean Poswer" Organised by MECON on 29th Nov. 2000.
- Prof. Arbind Kumar Delivered talk on Recent trends in Energy Scenario for economic development" in the course sponsored by A.I.C.T.E., New Delhi, organized by Regional Institute of Technology, Jamshedpur, on 3rd Jan 2001 at R.I.T., Jamshedpur.
- Prof. Arbind Kumar Delivered talk on Prospects of Non-Conventional Energy Utilization in Coal Mining Industries" at C.C.L. Rajrappa Project on 17th Jan. 2001, organized by C.C.L. Darbhanga House, Ranchi.

## Workshop

- Prof. Arbind Kumar Delivered talk on "Reengineering Technology" in the short term course organized by the Institution of Engineers, India, Ranchi local chapter, at Engineers Bhawan Ranchi.
- Prof. A.K.Roy Attended a Six day "Refresher course on Turbomachinery" held at Department of Mechanical Engineering, Sree Nidhi Institute of Science and Technology, Hyderabad from 1st – 6th May 2000.

# Department of Management

### Conference and Seminar

- Dr. S. K. Mukherjee, "Maintenance Management A key Factor to succeed in Machined Coal Mines"- Coal Mining Technology & Management Journal, February 2001.
- Dr. S. K. Mukherjee, "Forecasting of Engineering Man Power in certain selected Industry Map using Fuzzy Neutral Network Model"- International Journal of Information and Computating Science, VDI, 3 No.1, June 2000.

- Dr. S. K. Mukherjee, "Enterprises Resource Planing (ERP): A Modern Management Tool"-24<sup>th</sup> Annual Journal CMDA, March 2000.
- Dr. S. K. Mukherjee, "A Comparative Study of Supervised and Unsupervised Models of Neutral Networks in the Prediction of Engineering Manpower", International Conference on Communications, Computers and devices (ICCD-2000) organized by Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur, during December 14<sup>th</sup> to 16<sup>th</sup>, 2000.
- Dr. S. K. Mukherjee, "Forecasting Using Time series Model Direct Method in Comparison to Indirect Method"-Ibid.
- Dr. S. K. Mukherjee, "Selection of Material handling Equipment through Multicriteria Decision Malana Process", 15<sup>th</sup> National Convention of Production Engineers and National Seminar on "Emerging Convergence in Manufacturing Systems"-organised by the Institution of Engineers (India) at Bhopal during March 3-4,2001.
- Dr. S. K. Mukherjee, "Methodology for Selection of Casting Process in Conflicting Criteria Environment"-Ibid.
- Dr. S. K. Mukherjee, "Selection of welding Process a Multiple Criteria Decision Making Approach". National Symposium on Manufacturing Engineering in Twenty First Century, organised by Mechanical Engg. Dept., Indian Institute of Technology, Kanpur, during 2<sup>nd</sup> to 3<sup>rd</sup> March, 2001.
- Dr. S. K. Mukherjee, "OPT: An Alternative to Linear Programming to Solve Product Mix Problem", Ibid.
- Dr. S. K. Mukherjee. "Forecasting of Engineering Man Power Through a Comparative Study among the various Models of Fuzzy systems"- 35<sup>th</sup> Annual Convention of Computer Society of India. held in Chennai, during September 13<sup>th</sup> to 16<sup>th</sup>, 2000, published by Allied Publishers limited.
- Dr. S. K. Mukherjee, "A Fuzzy Time Series Based Framework in the Forecasting of Engineering Manpower in Comparison to Markov Modelling"- All Indian Seminar on Information Technology: Opportunities & Challenges in the Millenium organised by the Institution of Engineers (India), Computer Engineering Division held in Calcutta during 10<sup>th</sup> to 11<sup>th</sup> March, 2000.
- Sri P.K. Chatterjee & Prof. A. Prasad Marketing Engineer's Role defined a case for Marketing Engineers in negotiating with the Purchase Decision making unit in a PSU, Indian Management, Nov.2000.
- Sri P.K. Chatterjee & Prof. A. Prasad. Customer Relationship Marketing Making it Happen in Engineering Consultancy Service sector. Proceedings of Marketing Summit 2000 Excellence Through IT Applications. An All India, Conference organised by Department of Management. BIT, Mesra during 15<sup>th</sup> to 16<sup>th</sup> September, 2000

- Dr. A.N. Jha, Mrs. Shardha Shivani & Sri P.C.Jha, "Marketing Prospects of Merchant Banking in India", Proceedings of Marketing Summit 2000 Excellence Through IT Applications, An All India Conference organised by Department of Management, BIT, Mesra during 15<sup>th</sup> to16<sup>th</sup> September, 2000):
- Dr. S.K. Bose, "I.T. Led Marketing Dimension for Management for Non-performing Assets (NPAs) of Indian Public Sector Banks", Proceedings of Marketing Summit 2000 Excellence Through IT Applications. An All India Conference organised by Department of Management, BIT, Mesra during 15<sup>th</sup> to 16<sup>th</sup> September, 2000):
- Prof. Utpal Baul & Prof. Awadh Prasad. "Managing Knowledge for Acquiring New Product Advantage". Proceedings of Marketing Summit 2000 Excellence Through IT Applications. An All India Conference organised by Department of Management, BIT, Mesra during 15<sup>th</sup> to 16<sup>th</sup> September, 2000):
- Dr. S.K. Bose, "Working Capital management in Ice Age," National Seminar at IISM, Pundag, Ranchi on Management in Ice Age during 10<sup>th</sup> to11<sup>th</sup> February,2001.
- Dr. S.K.Bose, "Management of Working Capital in IT Led Virtual LPG Market A case study of Indian Manufacturing Unit using JIT Concept", National Seminar on Advance Integrated Manufacturing System(AIMS) on 2<sup>nd</sup> to 3<sup>rd</sup> February,2001 in MIT Campus, organised by the department of Production Technology, Anna University, Chrompet, Chennai.
- Dr. S.K.Bose. "Working capital Management in IT Perspective A case study of Indian Manufacturing Unit using JIT Concept", Published in Journal, the Chanakya, Vol.1, Issue 1, Jan-Mar. 2001. The paper was presented by in the National Seminar on Manage IT organised by Rourkela Institute of Management on 11<sup>th</sup> to 12<sup>th</sup> February, 2001.
- Dr. S.K. Bose, attended "Marketing Summit-2000 Excellence Through IT Applications, organised by Department of Management, BIT Mesra during 15<sup>th</sup> to 16<sup>th</sup> September, 2000.
- Dr. S.K.Bose, attended Manage IT, organised by Rourkela Institute of Management on 11<sup>th</sup> to 12<sup>th</sup> February, 2001.

### Workshop

Prof. S. C. Mishra attended QIP Short term course on "Introduction to Visual Communication" at IIT, Kharagpur from 20<sup>th</sup> to 24<sup>th</sup> January, 2001.

### Department of Pharmaceutical Science

### Conference and Seminar

- "Allocation of heavy and moderately heavy workload in Indian manufacturing environment", Proceedings of International Ergonomics Association XIVth Triennial Congress and Human Factors and Ergonomics Society, 44th Annual meeting "Ergonomics for the New Millenium", July 30-August 4,2000, San Diego, California, USA. B. K. Singh, D. Sasmal & S. K. Mukherjee.
- "Prototype expert system for industrial workspace design", Proceedings of International Ergonomics Association XIVth Triennial Congress and Human Factors and Ergonomics Society, 44th Annual meeting "Ergonomics for the New Millenium", July 30-August 4, 2000, San Diego, California, USA. B. K. Singh, D. Sasmal & S. K. Mukherjee.
- Dr. G. M. Panpalia Principal Coordinator of AICTE-ISTE sponsored Short-Term Training Programme (STTP-2 weeks) on "Recent Advances in Pharmaceutical Sciences & Cosmetic Teachnology", held between Nov.27-Dec.9, 2000.
- Dr. G. M. Panpalia delivered a lecture on "Recent Advances in the Theory & Practice of Pharmaceutical & Cosmetic Technology" at STTP sponsored by AICTE through ISTE on Dec.8, 2000.
- Dr. G. M. Panpalia delivered an invited lecture on "Recent advances in Pharmaceutical & Cosmetic Dispersions", at S.Bhagwan Singh Post-graduate Institute of Biomedical Sciences & Research, Balawala, Dehradun on April 24, 2001.
- G. M. Panpalia and A. Balasubramaniam, "Drug-Adjuvant Interaction study on Vitamin C with the additives of Cosmetic Formulation through Different Scanning Calorimetry", Drug Dev. Ind.Pharm. (USA) accepted for publication in May, 2001 issue.
- Sinha, B.N. and Emdad Hossain, "Review of Phytochemical and Biological Aspects of Genus Engenia", PHARMBIT, Pharmaceutical Society, B.I.T., Mesra (Nov. 2000).
- Sinha B.N., Basu, S.P., Emdad Hossain & Mane Utttam, "HPTLC An Efficient Tool for Standardisation of Ayurvedic Drug and Discovery of New Compounds from Natural Sources", Proc. 2nd International Seminar on Ayurveda, Jamnagar, Gujrat (Jan.2001).
- Sinha, B.N., "Modern Analytical Methods with Special Reference to Chromatography through Ages", AICTE sponsored STTP for Pharmacy Teachers. BIT, Mesra (Dec.2000).
- Sinha, B. N., Emdad Hossain & Mane, U.R., "A Novel Method for Isolation and Identification of the Target Molecule from Medicinal Plants". Proc. 5th National Conference of the Indian Society of Chemists & Biologists, Agra (March 2001).

- Prof.(Mrs.) S. G. Panpalia Delivered a lecture on "Drug Food Interactions" at Short Term Training Programme sponsored by AICTE-ISTE during Nov.27-Dec.9,2000.
- Prof.(Mrs.) S. G. Panpalia Delivered a lecture on "Use of Salivary Compartment in Clinical Studies", at Short Term Training Programme sponsored by AICTE-ISTE during Nov.27-Dec.9,2000.
- P.R.P.Verma and S.S.Iyer "Controlled Transdermal Drug Delivery of Propranolol Using HMPC Matrices: Design, In-vitro and In-vivo Evaluation" □J. Pharmacy and Pharmacology,2000, 52(2), P.156-156 (U.K.).
- P.R.P.Verma and S.S. Iyer "Transdermal Delivery of Propranolol Using Mixed Grades of Eudragit: Design, In-vitro and In-vivo Evaluation" □Drug Development and Industrial Pharmacy, 2000, 26(4) P.471-476 (USA).
- P.R.P.Verma and B.K.Razdan "Studies on Leucaena leucocephala Seed Gum I. Preformulation and Suspending Properties" S.T.P. Pharma Sciences Accepted (France).
- P.R.P.Verma and B.K.Razdan "Studies on Leucaena leucocephala Seed Gum : Rheological Properties" communicated.
- P.R.P.Verma and B.K.Razdan "Studies on Leucaena leucocephala Seed Gum : Emulsifying Properties" communicated.
- P.R.P.Verma and B.K.Razdan "Studies on Leuceuna leucocephala Seed Gum: Binding and Disintegrant Propertes" communicated.
- P.R.P.Verma and D. Das "Controlled transdermal delivery of ephedrine hydrochloride using hydroxypropylmethylcellulose matrices: design, in-vitro and in-vivo evaluation" communicated.
- P.R.P.Verma and S. Gurule "Transdermal Delivery of Ephedrine Hydrochloride Using Mixed Grades of Eudragit: Design, In-vitro and In-vivo Evaluation" - communicated.
- Prof. S. Samanta Organising and participation as expert in the Workshop in the seminar and workshop sponsored by Pharmacy Council India- January 2000 in the Deptt. of Pharm. Sciences, B.I.T., Mesra.
- Prof. S. Samanta Organising and Participation in the State Level Golden Jubilee Celebration & Workshop sponsored by Pharmacy Council of India held in Nov.5, 2000. Publication of Pharmbit as Prof.-in-charge during this occasion.
- Prof. S. Samanta Organising and participation as a speaker on the Topic "Recent Advances in Drug Design, QSAR and molecular modelling in the Short Term Training Programme dated Nov.27-Dec.9, 2000 sponsored by ISTE & AICTE in the Deptt. of Pharm. Sciences BIT.

- Prof. S. Samanta Participation in the National Seminar organised by DST Jharkhand April 2001 as a speaker on the Topic "Wealth of Herbal Medicines".
- Prof. S. Samanta Organising seminar on topics related to Biotechnology Dated 16-19th April, 2001.
- Dr. S. Jha, "Phytochemical study of Gymnema Sylvestre leaf (2001).," paper presented at International Seminar on Ayurveda and other Herbal medicines at Gujrat Ayurved University, p-16.
- Dr. S. Jha, "Tissue Culture with special reference Part I (2001)," Special Lecture ISTE/AICTE sponsored Short-Term Training Programme.
- Dr. S. Jha, "Tissue culture with special reference to production of Secondary metabolites Part II,". An invited lecture delivered during Bio-informatics and Biotechnology workshop conducted by BIT Mesra from April 16 19, 2001.
- Dr. S. Jha, Growth potential of Medicinal plants in Jharkhand. Evaluation and Strategy Presented at Seminar "Possibilities & Development of Medicinal and Aromatic Plants of Jharkhand" organised by Govt. of Jharkhand, April - 2001.
- Dr. S. Jha, Ethno-medicinal uses of plants by the tribals of Chotanagpur. J. of Ethnopharmacia (Ireland) Communitated (October 2000).
- M. Verma and M.S. Raghvendra, "Oxicams as Innovative Anti-inflamatory Agents", Pharmbit, Deptt. of Pharmaceutical Sciences, B.I.T., Mesra, p. 10-12, 2000.
- M. Verma, R. Jhingran. "French Bean A Multifaceted Plant" Pharmbit, Deptt. of Pharmaceutical Sciences, B.I.T., Mesra. p. 19-20, 2000.
- S.M.Verma, R. Suresh Kumar "Sedative/hypnotic, anti-convulsant and anti-microbial studies on calotropis gigantea leaf extracts". communicated.
- M. Verma, R. Prasad, N. Kudada "Investigation of Anti-viral properties on extract of pleurotus sajor caju" communicated.
- S. M. Verma, P. Ramchandran "Phyto-chemical characterization and Anti-microbial activity of Vitex negundu leaves" communicated.
- Sinha, A and Prof. Ramesh Chandra: Published, "Recent Trends in Genetherapy,".. Pharmbit (Nov. 2000) pp 24.
- Prof. Ramesh Chandra. "Human Genetherapy: Recent Trends.", Lecture Delivered in AICTE sponsored STTP organised throughISTE on Nov. 27-Dec.9, 2000 at BIT Mesra, Ranchi.

- Prof. Ramesh Chandra, "Secondary Metabolites Production by Hairy root culture," lecture delivered in Workshop on Biotechnology & Bioinformatics and its Horizon on 19th April 2001 at BIT Mesra.
- Prof. Ramesh Chandra, "Transgenic Plants: A Production System for Heterologom Industrial and Pharmaceutical Protein lecture delivered in one dayer seminar 'Possibilities of Development of Medicinal and Aromatic Plants in Jharkhand," organised by S & T, IT & Industry Ministries, Govt. of Jharkhand on 28th April, 2001.

### Workshop

- Prof. Ramesh Chandra attended workshop on "Highperformance computing applications in Bioinformatics", during Aaugust 3-7, 2000.
- Dr. G. M. Panpalia Participated in "Regional Workshop on Patent Awareness" organised by BIT Mesra in collaboration with DST & TFAC, Nov.4-5,2000.
- Dr. G. M. Panpalia Local participant in "AICTE Accreditation Awareness Programme held by BIT in Collaboration with AICTE held in Nov. 2000.

## Department of Polymer Engineering

## Workshop

- Ms. Sarita Prasad, Associate Lecturer, actively participated in three week "Induction Training Programme in Engineering Education" under AICTE, approved staff development scheme, held from 25th Dec. 2000 till Jan 13th Jan. 2001 at RIT Jamshedpur.
- Sri Sanjoy Datta, Assistant Professor, was sponsored by BIT, to attend a short term course named "Recent Advances in Rubber Blends and Thermoplastic Elastomers", from 8-12th January 2001, organised by "Rubber Technology Centre", IIT Kharagpur.
- Sri Chandan Guria, Assistant Professor, and Sri Sanjay Datta, Assistant Professor, participated in "Regional Workshop on Patent Awareness" organised by Birla Institute of Technology, Mesra, Ranchi in collaboration with Bihar Council of Science and Technology, D.S.T., Govt. of Bihar & TIFAC, D.S.T. Govt. of India, from 4th to 5th November, 2000.
- Dr (Mrs) M. Mukherjee attended the 2day "National Board of Accreditation Awareness Workshop", sponsored by AICTE, on 10th and 11th November 2000 at BIT Mesra.

## Department of Production Engineering

### Conference and Seminar

- Dr.S. K. Mukherjee has attended a Fifteenth National Convention of Production Engineers & National Seminar on Emerging Convergence in Manufacturing Systems- March 3-4, 2001, at Bhopal and delivered the Key Note address.
- Prof. S. Chattopadhyaya, has attended a national seminar at Bundelkhand Institute of Technology, Jhansi
- Dr. S. K. Mukherjee ,Dr. S. Kumar, and Prof. S. Chattopadhyaya have attended: 16th AIMTDR at IIT Chennai during, Dec-2000,
- Prof. S. Chattopadhyaya, has attended the National Symposium on Manufacturing Engineering in Twenty First Century, at IIT Kanpur, during 2nd & 3rd March 2001
- Prof. C. Pandey has attended the National seminar on Advances in Integrated Manufacturing systems, at MIT, Anna University, Chennai, during 23rd Feb-2001.
- Dr. B. K. Singh has attended the sixteenth National Convention of Mechanical Engineers and All India Seminar on 'Future Trends in Mechanical Engineering Researchand development at Dept. of Mech.& Industrial Engg. UOR, Roorkee, 29-30 Sept. 2000.

## Department of Remote Sensing

### Conference and Seminar

Ajay Srivastava Presented a Paper "River Behaviour in Eastern Ganga Plain" in the National Symposium on Spatial Technologies for Natural Hazards Management at Indian Institute of Technology Kanpur, during 21st to 22nd November, 2000.

## Workshop

Ajay Srivastava attended a one week training course on "Global Positioning System (GPS) and its Application" at Indian Institute of Remote Sensing(IIRS), Dehradun, during 13th to 17th November, 2000.

## Department of Space & Rocketry

### Conference and Seminar

- Dr. A.K. Chatterjee, Dr. Mohan Varma, Dr. T.K. Nandi and Prof. P.K. Dash attended the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, Feb. 22-23, 2001, B.I.T., Mesra, Ranchi.
- Dr. Mohan Varma attended the 3rd International Conference on High Energy Materials, Dec.6-8, 2000, HEMSI, Thiruvananthapuram.
- Dr. T.K. Nandi attended the All India Workshop on Cryogenic Technology in Mechanical Engineering (CRYO TECH - 2000), The Institution of Engineers (India), Calcutta, June 17, 2000.
- Dr.A.K. Chatterjee attended the Seminar on Prospects & Priorities of Jharkhand, Dec. 09,2000, IICM, Ranchi.
- Dr.A.K.Chatterjee attended the Seminar on Prospects of Swadeshi Technology and Job Creation in Context of Jharkhand State, Dec.11, 2000, Govt. Polytechnic, Ranchi.

### Workshop

- Dr. A.K. Chatterjee and Dr. Mohan Varma attended the Regional Workshop on Patent Awareness, Nov. 4-5, 2000, B.I.T., Mesra, Ranchi.
- Prof. P.K. Dash attended the National Workshop on Kinametics and Dynamics , on March 19 21, 2001, B.I.T., Mesra. Ranchi.
- Dr.A.K. Chatterjee and Dr. Mohan Varma attended the Accreditation Awareness Workshop, Dec. 17-18, 2000, B.I.T., Mesra, Ranchi.



Research Papers, Books and Articles Published or Accepted for Publication

## Department of Applied Mathematics

- S.K. Samal, "Propagation of surface wave in a liquid saturated porous solid layer overlying a transversely isotropic elastic half space", Mathematical applications in social and industrial sectors Narosa Publishing, New Delhi, 2001, pp.253-270.
- S.K. Chakraborty, "Disturbance due to a point source in a substratum of fluid saturated porous layer",
   Mathematical applications in social and industrial sectors Narosa Publishing, New Delhi, 2001,
   pp.271-283.
- S.K. Jain and U.S. Gupta, "Buckling of elastically restrained circular plates using method of collocation by derivatives, Mathematical applications in social and industrial sectors Narosa Publishing, New Delhi. 2001,pp.253-270.
- S.K. Jain, U.S. Gupta and R. Lal, "Axysymmetric Vibrations of circular sandwich plates with core of linearly varying thickness", Advanced in elastic vibrations and smart structures, Phoneix Publishing House Pvt. Ltd. New Delhi, pp43-50.

### Books Published

- Mathematical applications in social and industrial sectors(Ed. N.C.Mahanti), Narosa Publishing, New Delhi, 2001.
- Advanced Mathematical tools for antenna theory and design (Ed. N.C.Mahanti), (seminar Proceedings), January 2001.

### Department of Applied Mechanics

- R. K. Ranjan and S.K. Chakraborty, "Developments of Sintered Components by Extrusion" to be presented in Second International Conference on Theoretical and Applied Computational and Experimental Mechanics, during 27th to 30th December, 2001
- Prof. Rampal Singh and S.K. Jain, "Asymmetric Vibration of Annular/ Circular isotropic plates with elasticrestraints against translation and rotation by using spline interpolation techniques", to be presented in Second International Conference on Theoretical and Applied Computational and Experimental Mechanics, during 27th to 30th December, 2001

### Department of Applied Physics

- Plasma Technology and its Application P. K. Barhai, Chapter-15 in the book Agile Engineering: edited by Dr. Surender Kumar and Dr. Alok Verma, Satya Prakashan, New Delhi(2000), pp 144-164.
- "Concept and Misconcepts in Physic-1: Centripetal and Centrifugal Forces", R.K. Popali, Bull. IAPT, Vol. 17, No.4(2000), pp106-110.
- "Concept and Misconcepts in Physic-1: Centripetal Forces and Inertial Reference Frame". R.K. Popali, Bull. IAPT, Vol. 17, No.7(2000), pp197-202.
- Cross Focusing of two long beams in InSb Semiconductors; L. Singh, S. Konar, A.K. Sharma and V.K. Tripathi; in international Conference on Fiber Optics and Photonics held at Calcutta, Vol.1,(2000), pp 626-629.
- Exchange of Information via cross Modulation in n type InSb Semiconductors; L. Singh, S. Konar, A.K. Sharma and V.K. Tripathi; in international Conference on Fiber Optics and Photonics held at Calcutta, Vol.1,(2000), pp 277-280..
- Broad area optical characterization of well-width homogeneity in GaN/ Alx Ga1-xN multiple quantum wells grown on sapphire wafers, A. Pomaric, M. Lomascolo, Apassaseo, R. Cingolani, M. Berti, E. Napolitani, M. Natali, S.K. Sinha and A.V. Drigo Appl. Phys. Lett. Vol.77(25) December 2000, pp 4127-4129.
- Low pressure MOVPE growth and structural properties of Zn MgSe Epilayers on (100)GaAs, P. Prete, N.Lovegine, L. Topfer, M.Berti, S.K. Sinha and A.M.Mancini accepted in J. Crystal Growth.

### Department of Applied Chemistry

- P.K. Srivastava, "Test of Thermodynamics Theory of Stability of B-2 Reaction System" J. Chemtracks. 1,2,142-51(1999).
- P.K. Srivastava, "Mosaic Structure in Phenol-Bromate-Sulphuric Acid Oscillator", Oriental. J. Chem. 16, (1), 73-77(2000).

#### Department of Architecture

- Manjari Chakraborty, " Art in Concrete- A Technical Poetry" Published in the ICI-ASIAN Conference on ecstasy in Concrete in Bangalore during November, 2000.
- Manjari Chakraborty, "Shaping Technical Education for the Future" Published in ISTE Annual Convention in Ahmedabad during December, 2000.

- Manjari Chakraborty "Journal of LANDSCAPE ARCHITECTURE" summer-2001, "Exploring the Landscape Architecture".
- Prof. Ajay Khare, "Conservation Issues related with Terracotta Structure" Published in the International Journal of Bengal art by Dr. Enamul Haque, organised by International Institute of Studies in Bengal Art Dhaka 2001.

# Department of Civil Engineering

 Prof. Balram Singh, "Study of variably inclined MHD Flows through porous Media in Magnetograph plane", Published in Bulletin of the Calcutta Mathematical Society. 92(1)p39-50(2000)

# Department of Electronics & Communication

- Prof. D. Pal, "Circuit Relisation of a novel active-RFSK modulator and all-digital demodulator," communicated to International Journal of Electronics.
- Prof. S. K. Ghorai, Prof. S. Maiti. and Prof. S.C. Som, "Collective Genetic Algorithm for Higher order refractive index modulatin components in phtorefractive BSO," Proc. Of International Conference on Fiber Optics and Photonics "Photonics 2000", held at Calcutta, during 18<sup>th</sup> to 20<sup>th</sup> December 2000, Vol.2, p620-622,
- Prof. Soma Barman presented, "Intelligent Robot and Mechatronic Press Control for automated Assembly," Proceeding of National Workshop on Industrial Problems in Machines and Mechanism, IPROMM-2000, during 19<sup>th</sup> to 20<sup>th</sup> January, 2001.
- Prof. Soma Barman presented. "Isolated Handwritten Character Recognition," in International Conference on Intelligent Processing & Manufacturing of Materials, British Columbia, Canada(Communicating).

### Department of Electrical & Electronics

- Prof. R. C. Jha "Microprocessor Based Variable Speed DC Series Motor Control" Published in the Proceeding of National Seminar on Mechatronics in Manufacturing System in Dept. of Production Engg., BIT Mesra, March 25-26, 2000.
- T.Ghose, R.C. Jha and D.K. Mohanta, "Microprocessor Based Variable Speed DC Series Motor Control" – Published in the Proceeding of National Seminar on Mechatronics in Manufacturing System in Dept. of Production Engg., BIT Mesra, March 25-26, 2000.
- Prof. P.K. Sadhu "Design of resonant high frequency inverter for induction heating", published on VIIth W. Bengal State Science & Technology Congress, Feb. 28 – March 1st. 2000 organized by JADAVPUR UNIVERSITY, CALCUTTA – 32.

- Prof. P.K. Sadhu "New generation fluid heating in non-metallic pipeline using high-frequency load resonant "BJT" inverter" published on National Seminar SASESC 2000 held on March 4-5, 2000 organized by Faculty of Engineering, DEI, Dayalbagh, Agra.
- Prof. P.K. Sadhu "Design of New generation fluid heating in non-metallic pipeline incorporating autotraining PID central based PWM resonant IGBT inverter", published in National Seminar on Mechatronics in manufacturing system, MACMAN-2000, held on March 25-26, 2000, organized by Dept. of Production Engg. BIT Mesra.
- Prof. P.K. Sadhu "A clean heat generation on fluid in non-metallic pipeline using BJT and IGBT" published in International Seminar on "CLEAN POWER" held on Nov. 29-30, 2000, organized by MECON LIMITED, Ranchi.

# Department of M.I.S.

- Karn, Braskar "Fuzzy Information Retrieval". Presented at G.B. Pant Engg. College at Pauri Garhwal on 25th June 2000 and published in the proceedings if the conference "IT Challenges and future".
- Karn, Bhaskar "Individual Decision Making Using Fuzzy Set Theory". Prrsented at IASLIC Conference at Regional Science Centre, Bhopal in November 2000 and published in IASLIC Bulletin 46(1), 2001, page 50-53.
- Karn, Braskar "Information Retrieval System Using Fuzzy Set Theory --- A Basic Concept" was presented at B.I.T. Mesra at the summer school organized by Deptt. Of EEE.

# Department of Computer Science

- Mahanti, P. K., 'Simulation of Digital Control Systems', Accepted Int. J. of Simulation & Modelling, Germany, April 2001.
- Mahanti, P.K., 'A new Simulation Technique for Engineering Control System', Accepted, Int. J. of Simulation & Modelling, Germany, May 2001.
- Mahanti. P.K., 'Hybrid Intelligent System for forecasting Interest Rates', Accepted for presentation ate International Conference on Computational Science., Sanfrancisco, California, May 28-30, 2001.
- Mahanti, P.K., 'Intelligent Single-agent control in a deracinating environment', Pub. Int. J. of Information & Computing Science, Vol.-3, No-1, June 2000, pp. 26-35.
- Mananti. P.K., etal., 'Expert System Application in Agriculture': Expert decision Techniques', Journal,
   Dept. of Agriculture & Statistics, Govt. of India, May 2000.

- Sahoo, G., 'An Implementation criterion of Domavad Prince Formulae for better time complexity and Improved accuracy., Communicated to J. Comp., Appl. Math., Jan. 2001.
- Sahoo, . etal., 'A class of 5(4) and 6(4) single step methods for second order differential equations'. Communicated to Int. J. Comp. Math., Jan. 2001.

# Department of Mechanical Engineering

Arbind Kumar Presented paper entitled "Hydrogen: Tomorrows limitless fuel" in the National Seminar & the Annual paper meeting of the Institution of Engineers, India, on 30th sept. 2000 at University of Roorkee, Roorkee.

# Department of Polymer Engineering

 Dr(Mrs) M. Mukherjee was invited by Centre for Polymer Science and Engineeing. Indian Institute of Technology, Delhi, to attend a Workshop on "Review of Curriculum of M.Tech Programme in Polymer Science and Technology" held on April 4, 2001 at IIT, Delhi

# Department of Production Engineering

- S.Chattopadhyaya, Dr.S.Kumar, Dr.Alok Varma: "Just in time Practices in Indian Manufacturing Unit" Proceedings of national seminar at Bundelkhand Institute of Technology, Jhansi
- S.Chattopadhyaya, Dr.S.Kumar, "Transfer of Agile engineering Technology to tribal industries"-16th AIMTDR conference, Dec-2000, HT Chennai
- Dr.S.Kumar "Mechanical Processing of Sintered Performs as an Aid to Manufacture Powder Metal Components" Proceedings of the National Symposium on Manufacturing Engineering in Twenty First Century, IIT Kanpur, 2nd & 3rd March 2001, page –41
- Dr.S.Kumar and Dr. S.K. Mukherjee, "Rapid Response Manufacturing Enterprises" Proceedings of the National Symposium on Manufacturing Engineering in Twenty First Century, IIT Kanpur, 2nd & 3rd March 2001, page –59
- S.Chattopadhyaya, Dr.S.Kumar, "Productivity Improvement of Agile Manufacturing Enterprises through Blue Tooth Technology" Proceedings of the National Symposium on Manufacturing Engineering in Twenty First Century, IIT Kanpur, 2nd & 3rd March 2001, page -65
- Dr.S.K.Mukherjee, "Selection of Material Handling Equipment Through Multi Criteria Decision Making (MCDM) Process" Fifteenth National Convention of Production Engineers & National Seminar on Emerging Convergence in Manufacturing Systems- March 3-4, 2001, Bhopal, page 69FA

- Dr.S.Kumar and Ritesh Kumar Singh, "Waste Minimization in a Manufacturing Industry" Fifteenth National Convention of Production Engineers & National Seminar on Emerging Convergence in Manufacturing Systems- March 3-4, 2001, Bhopal, page 53EA
- Dr.S.K.Mukherjee, "Methodology for Selection of Casting Process in Conflicting Criteria Environment" Fifteenth National Convention of Production Engineers & National Seminar on Emerging Convergence in Manufacturing Systems- March 3-4, 2001, Bhopal, page 90EA
- C.Pandey,"Relevance of Agile Manufacturing in Indian Context "National seminar on Advances in Integrated Manufacturing systems, department of Production engineering MIT, Anna University, Chennai, 23rd Feb-2001
- Dr.S.K.Bose. S.Chattopadhyaya," Just in Time Practices in Indian Manufacturing Unit ",Journal of Rourkela Institute of Management Studies, Rourkela, India.
- Dr. B.K. Singh,"Performance modelling of a mechatronic equipment", Proceedings of 14th National Convention of Production Engineers and National Seminar on "Mechatronics in Manufacturing Systems", organized by the Institution of Engineers 910 Ranchi Local Centre & Dept. of Production Engineering, B.I.T. Mesra, Ranchi, p. 103-109, 25-26, March, 2000.
- Dr. B.K. Singh, Dr. D. Sasmal and Dr. S.K. Mukherjee, "Allocation of heavy and moderately heavy workload in Indian manufacturing environment", Proceedings of International Ergonomics Association XIVth Triennial Congress and Human Factors and Ergonomics Society, 44th Annual meeting "Ergonomics for the New Millennium", San Diego, California, USA, July 30-August 4, 2000.
- Dr. B.K. Singh, Dr. D. Sasmal and Dr. S.K. Mukherjee, "Prototype expert system for industrial workspace design", Proceedings of International Ergonomics Association XIVth Triennial Congress and Human Factors and Ergonomics Society, 44th Annual meeting "Ergonomics for the New Millennium", San Diego, California, USA, July 30-August 4, 2000.
- Dr. B.K. Singh, Dr. D. Sasmal and Dr. S.K. Mukherjee, "Work allocation to tribazl industrial workers on the basis of physical working capacity", Proceedings of the sixteenth National Convention of Mechanical Engineers and All India Seminar on 'Future Trends in Mechanical Engineering Research and development' at Dept. of Mech. Industrial Engg. UOR, Roorkee, 29-30 Sept. 2000.
- Dr. B.K. Singh, Dr. D. Sasmal and Dr. S.K. Mukherjee, "Evaluation of physical working capacity for work allocation", Journal of the Institution of Engineers (India)- PR, Vol. 81, Sept. 2000. p. 18-22.

#### Book Published:

- Dr.S.Kumar & Dr.S.K.Mukherjee" Robotic Engineering" Satya Prakashan, New Delhi,2001
- Dr. S.Kumar & Dr. Alok Verma" Agile Engineering" Satya Prakashan, New Delhi, 2000

### Department of Management

- Dr. S. K. Mukherjee, "Reliability Centered Maintenance (RCM) strategy for Heavy Earth Moving Machinery in Coal Mines" Industrial Engineering Journal. Vol xxx.No. 5. May 2001. Pp 15-21
- Dr. S. K. Mukherjee, "Maintenance Planing of a Mining Equipment Based on Valuation of Machine Health for New Millenium"- Journal of Mines, Metals & Fuels. Vol. XLIX, Nos: 1 & 2 January-February 2001, Pp 26-31.
- Dr. S. K. Mukherjee, "Improvement in Maintenance Process of HEMM by Pareto Analysis",-The Indian Mining & Engineering Journal, Volume: 40, No. 1-2,Pp 38-44, January-February 2001.
- Dr. S. K. Mukherjee, "Reliability Availability & Maintainability (RAM) of Heavy Earth Moving Machinery in Ap Open Cost Mine"- Mine tech. Vol. 21, No. 5 & 6, Pp 15<sup>th</sup> to 19<sup>th</sup>, Sep-Dec.2000.
- Dr. S. K. Mukherjee, "Some Aspects of Failure Analysis of Mining Machinery"- The Indian Mining & Engineering Journal. Vol.39, No.8, Pp 34-36, August 2000.
- Dr. S. K. Mukherjee, "Selection of professional using Analytic Hierarchy Process"- Journal of the Institution of Engineers (India). Vol. 81, Pp 16<sup>th</sup> to 18<sup>th</sup> June, 2000.
- Dr. S. K. Mukherjee, "Managing Projects Through Risk Management"- Journal of the Institution of Engineers (India). Vol. 81, Pp 16<sup>th</sup> to 18<sup>th</sup> June, 2000.

## Department of Pharmaceutical Sciences

- Prof. B.K.Singh, Prof. D. Sasmal and Prof. S. K. Mukherjee, "Evaluation of physical working Capacity for work allocation" Journal of the Institution of Engineers (India) IE (I) Journal -(2000) PR 81 18-22.
- Prof. B.K.Singh, Prof. D.Sasmal and Prof. S.K.Mukherjee, "Work allocation to tribal Industrial Workers on the basis of physical working capacity": proceedings of 16th National Convocation of Mechanical Engineers and National Seminar on Future Trends in Mechanical Engineering, R&D, Dept.of Mech. And Ind.Engg. U.O.R., Roorkee, Sept. 29-30,2000, Ajay Printers and Publishers, Roorkee, New Delhi, Lucknow, 603-605.
- Prof. Papiya Mitra Mazumder and Prof. D. Sasmal "Mycotoxins Limits and regulations":. Ancient Science of Life, Vol. No.XX(3), January, 2001, 1-9.

- Prof. Papiya Mitra Mazumder, Prof. Rupa Mazumder, Prof. Avijit Mazumder & Prof. D. Sasmal "Aantimicrobial activity of the mycotoxin Citrinin" obtained from the fungus Penicillium citrinum. (communicated).
- Prof. Papiya Mitra Mazumder & Prof. D.Sasmal "Biochemical and Hepatological Evaluation of Citrinin in mice', (communicated).
- Prof. Lakshmi Prof. G.S., Prof. Papiya Mitra Mazumder & Prof. D.Sasmal, "Hypoglycaemic activity of Momordica charantia in combination with Zinc and ascorbic acid on alloxan induced diabetic rabbits", (communicated)
- Prof. S. Ganguly, 'Imidazole Analogs and their Significance', in Indian Journal of Pharmaceutical Sciences in May, 2001.
- Prof. B.I.Razdan and Prof. S. Ganguly, "Synthesis and Study of few 2-methyl 4(5) Nitronidazoles, "in Indian Journal of Chemistry in April 2001,
- Prof. A. K. Tiwry and Prof. G.M.Panpalia, "Enhanced Suspension Stability: Choice of Crystal Habit", Ind.J.Pharm. Sci.,62(4), 267-272 (2000).
- Prof. P.R.P.Verma and Prof. K.K. Florence "Need of Computer Literacy for Pharmacy" Pharmbit, 2000, P.6-9.

#### Department of Remote Sensing

• Prof. Ajay Srivastava selected in the editorial board of "Journal of Spatial Hydrology" for the Period 2001-2002.

# Department of Space & Rocketry

- Prof. T.K. Nandi and Prof. A.K. Chatterjee, "Liquid Hydrogen and Cryogenic Rocket Propulsion", Presented in All India Workshop on Cryogenic Technology in Mechanical Engineering (CRYO-TECH-2000), The Institution of Engineers (India), Calcutta, June 17, 2000.
- Prof. Mohan Varma and Prof. M. Pandey, "Thermal Decomposition Studies on Catalysed Ammonium Nitrate", Proceedings of the 3rd International Conference on High Energy Materials, Thiruvananthapuram, Dec. 3-6, 2000, pp.182 188.
- Prof. Mohan Varma and Prof. P.V. Jaiswal, "Rheological Studies on Aniline Based Heterogeneous Fuel Systems". Proceedings of the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, B.I.T. Mesra, Feb. 23-24, 2001.

- Prof. K. Satish, Prof. P.K. Dash and Prof. A. K. Chatterjee, "A Complete Mechanical Properties Characteristion of Woven Carbon Fibre Reinforced Composite for Aerospace Application", Proceedings of the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, B.I.T., Mesra, Feb. 23 - 24, 2001.
- Prof. S.K. Sabut, Prof. S. Das, Prof. A. Roy, Prof. P.K. Dash and Prof. A.K. Chatterjee, "An Experimental Investigation of Transonic Flow Over Aft-Section Proturberance", Proceedings of the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, B.I.T., Mesra, Feb. 23 24, 2001.
- Prof. R. Kannan and Prof. Rajesh K.K., "Determination of Burning Rate Law from Ballistic Evaluation Motor Tests", Proceedings of the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, B.I.T., Mesra, Feb. 23 24, 2001.
- Prof. Neeraj Kumar, Prof. T.K. Nandi and Prof. A.K. Chatterjee, "Design and Development of Herringbone- Grooved Journal Bearings for Cryogenics Turbo- Expander Rotors" Proceedings of the National Seminar on Aerospace and Rocket Technologies: Challenges Ahead, B.I.T., Mesra, Feb. 23 24, 2001.
- Prof. P.K. Dash, Prof. K. Satish, and Prof. A.K. Chatterjee, "Effect of Notch and Environment on Tensile Strength of CFRC - An Experimental Study", Journal of Institution of Engineers (I), Aerospace Engineering, Division, Vol. 91, No.1, May 2001.
- Prof. T.K. Nandi, "Heat Transfer Through Cryogenic Rocket Propellant Tank Insulation During Ground Hold Conditions", Journal of Spacecraft and Rockets, AIAA, Vol. 38, No.3, 2001.
- Prof. J.N. Mishra "Regional Workshop on Patent Awareness- Why and How", Regional Workshop on Patent Awareness, B.I.T., Mesra, Nov. 4 5, 2000.
- Prof. Mohan Varma and Prof. R.K. Singh," Ignition and Combustion Studies on Formalazine", Accepted for Presentation and publication in Proceedings at 32nd International Conference of ICT to be held at Fraunhofer Institute EMBED Equation.3 Chemische Technologie, Berghausen (Germany), July 3-6,2001.
- Prof. A.K. Chatterjee: "Prospects of Job Creation and Role of Cottage and Small Industries in Jharkhand State", Seminar on Prospects of Swadeshi Technology and Job Creation in Context of Jharkhand State, 11 Dec 2000, Govt. Polytechnic, Ranchi.

# Ph.D Scholars



# SCHOLARS REGISTERED FOR Ph.D

Following Ph.D Scholars have qualified for the awarded of the Ph. D Degree of the Institute during the year 2000-2001:

S.NO.	Name of Scholars	Title of Thesis
1.	Sri B.K. Singh	Some ergonomic Considerations in Work Design.
2.	Sri N.V.Nagaraj	Pharmacokineties 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.
3.	Ms. Deepa Kulkarni	Formulation and Evaluation of Oral Sustained Release Drug Delivery Systems Using Tamarind Seed Polyse.
4.	Sri M.Adiraj	Synthesis and use of Methyl Phosphonate Eontaining Oligonucle Otides for the study of B-Z DNA Transition.
5.	Sri B.N.Sinha	Phytochemical and Pharmacological Studies on some Plants used in Indigenous System of Medicine.
6.	Sri Deepak M.	Standardization of Herbal Drugs.
7.	Mrs. Sunita Kesri	Study of oxide superconductors with high transition temperatures.

Following Scholars have been Submitted the Thesis for the Award of Ph. D. Degree during the year 2000-2001:

S.NO.	Name of Scholars	Title of Thesis
1.	Sri K. S. Bhat	Process of Learning for Turnaround in Productivity -Strategy Formulation and

# its Implementation.

2.	Sri Rajendra Prasad	Quality System in Research and Development
3.	Sri I. B. Singh	Role of Development Agencies in the Socio- Economic Development of Tribes of Chhotanagpur Region.
4.	Sri Sumit Dutta	Developing a Risk Management Matrix for Effective Project Planning.
5.	Ms. S. V. Subhashini	Numerical Study of Unsteady Compressible Boundary Layer Flows.

Following new Scholars have been registered/permitted to register for Ph. D. programme in the subjects/areas of their study as started below:

S.NO.	Name of Scholars	Title of Thesis
1.	R. Sukesh Kumar	Monochromatic and Color Image Interpretation Systems.
2.	Mr. R. C. Jha	Some Studies on Economic Generation Scheduling
3.	Sri Sachin Behari Srivastava	Studies on Polymer/Copolymer Gels as Intelligents Polymers.
4.	Sri Pradeep Chatterjee	Application of Neural Networks and Fuzzy Logic in Drives.
5.	Mrs. Manjari Chakraborty	The Millennium Package for Architecture Education a through Recast of the Undergraduate Scope.
6.	Sri Pawan Kumar	Time Dependent Mechanical Properties of Glass Fibre Reinforced Plastics for their Architecture Applications.
7.	Sri Asish K. Chakraborty	Studies on some distance measurement algorithm using stereo vision and pattern recognition software and gyroscopic

stabilization of antenna holding device fo	r
mobile robot towards total shop floor	
automation	

- Some Studies on Complex Adaptive System. Mr. K. Chatterjee 8.
- Computational Aided Analysis of 3D Natural Convection in Porous Media. Sri Rabindra Pd. Sharma 9.

Besides the above the following Scholars are continuing the work for Ph.D. Degree who were registered in the previous years:

S.NO.	Name of Scholars	Title of Thesis
1.	Sri S.K.Ghorai	Nonplinear Opties.
2.	Sri P. K. Das	Experimental Studies on Fatigue of Glass and Carbon Fibre reinforced Composites under adverse environmental Conditions.
3.	Sri Ajay Srivastava	Effects of Subsurface Features in the Evolution of Gangetic Plain: An Integrated Approach Using Remote Sensing and GIS
4.	Sri Hari Shankar Gupta	Change Detection in the Forest Cover and Tree Density using Remote Sensing Technology- A Case Study of Ranchi District
5.	Mrs. Richa Sharma	Detection of change in the Forest Cover of Chhota Nagpur Plateau Using Multi-date Satellite Imagery.
6.	Sri Braja Bihari Panda	Compatibility Studies on Solid State Formulation of Antihypertensive agents (Drugs) through DSC.
7.	Sri Ranjan Rajesh Kumar	Formability Criteria of Sintered Preform.
8.	Sri Hans Raj Misra	Manufacturing Strategies in the Next Millennium and their Impacts on HRD effects of Ancillary Units".
9.	Ms. Rupa Mazumdar	Studies on Pharmaceutical Compounds 74

		Produced by Fermentation on Micro-Organisms from Soil.
10.	Sri Arbind Kumar	Stress Induced Magnetic and Electromagnetic Effects in Metals.
11.	Sri Raj Shekhar Prasad	Effects of Weathering of Metasedimentary and Granetic Rocks and Genesis of Economic Minerals in the area, West of Bishanpur, Bihar.
12.	Sri A. K. Thakur	Oxidation and Wear Behaviour of High Strength Low Alloy Steels.
13.	Sri B. Mallik	Studies on Some Characteristics of AMMC & Applicability in Manufacturing.
14.	Sri Vinay Sharma	Hydrojet System for Mining Under Indian Environment".
15.	Sri Somnath Chattopadhayay	Transfer of Agile Manufacturing Technology for Rural Medium and Small Scale Industries (With Special Reference to Indian Manufacturing Environment.)
16.	Sri Bhaskar Karan	Fuzzy Information Retrieval.
17.	Sri P. K. Chatterjee	Engineering Consultancy Marketing Services in the Domain of Industrial Marketing- a case Study of MECON Ltd.
18.	Sri Utpal Baul	Study of the Mutuality of Influeces Between Industrial Buying Behaviour and Marketing & Strategy.
19.	Sri M. K. Sinha	Development and characterization of metallic and non-metallic thin films using anodic vacuum arc technique.
20.	Sri Rampal Singh	Vibration of Plates
21.	Ms. S. M. Verma	Synthesis and Pharmacology activities of some new analogous of azabicycle nonanes.

22.	Sri Ramesh Chandra	Studies on L-Asparaginase Production.
23.	Sri B. K. Singh	Experimental Studies on Buckling Behavior of Fibre Composite Stiffened Plate.
24.	Sri Arun Kumar	Structural Engineering.
25.	Sri Birendra Kumar Singh	Water Resources Engineering
26.	Sri Hari Shankar Gupta	Change Detection in the Forest Cover and Tree Density using Remote Sensing Technology- A Case Study of Ranchi District
27.	Sri K. Niranjan	A Critical Study of inventory management in PSU's: A Case Study of HEC.
28.	Ms. Debjani Basak	Metallic Surface Coating Using Anodic Vacuum Arc.
29.	Sri K. N. Jha	Science in the Periphery- A Scientometric Analysis of Science in the Southern African Countries.
30.	Sri Gautam Kumar Saha	Transient Fault Control by Software.
31.	Sri Manoranjan Pandey	Catalytic Influence on Thermal Degradation and Burn Rate of Composite Solid Propellants and their Ingredients.
32.	Sri Balram Singh	A Theoretical Study on Magneto-Fluid Dynamics Flow
33.	Sri S. A. Siddiqui	Technological Aspects for Improving Productivity of a Forge Industry
34.	Sri Gopal Krishna	Artificial Neural Networks Applied to Rolling Mills.
35.	Sri K. S. Madanpuri	Application of Fuzzy and Expert Systems to Telecommunication

36.	Sri D. N. Prasad	Studies on some Indegenour Speed For Possible utilization in Pharmacy.
37.	Sri S. Samanta	Synthesis and Studies on Piperidine Analogs
38.	Sri Arun Kumar	Fatigue Behaviour of Adhesive Lap Joint
39.	Sri B. D. Choubey	Physio-Chemical Study of Coordinated Malonic Acid and Similar Compounds.
40.	Mrs. Aruna Jain	Study of Non-Equilibrium Plasmas.
41.	Sri K. R. Roy Choudhary	Buckling of Laminated Composites Plates.
42.	Sri Amit Jana	Theoretical Modelling of Heterounction Field Effect Transistor for High Speed and Opto-Electronics Applications.
43.	Sri S. K. Datta	Some Theoretical Studies on Optically Controlled Microwave Semi Conductor Devices.
44.	Sri A. K. Mishra	Some Experimental Studies on Environmental Pollution due to Diesel Engine Exhaust.
45.	Sri S. N. Thakur	Castability, Forge-ability, Machinability and Fracture Behavior of Aluminium Silicon Alloys.
46.	Sri R. S. Yadav	Impact of Physical Training on Managerial Effectiveness- A Case Study of Some Institutions and Organisations.
47.	Sri Pawan Kumar Rai	Solid waste management in steel plants for improvement Environment.
48.	Sri Prasant Kr. Mukherjee	Quadratic Sruds and method of Approximating them in Ancient and Mediaeval Mathematics.
49.	Ms. Sandhya Rani	Study of some chemical aspects of stress induced Magnetic &

		Electromagnetic Effects in Transition Metals and Intemetallic compounds.
		•
50.	Sri Sudhir Sharan	Computer based Analysis & Modelling for Interated Working Capital Management
51.	Sri Arun Kumar	Synthesis and Pharmacological Studies of Indian Analogs.
52.	Sri T.R.Ranganath	Studies on Honey Comb Stabilised Saltless Solar Pond.
53.	Sri U.S.Prasad	Stress Induced Magnetic and E.M. Effects in Metals
54.	Sri Girish Pathak	Tribological Investigations in Mechanical Processing.
55.	Sri K.K.Verma	On the Design of Some Computer Algorithms to Solve Second order-ordinary Differential Equations.
56.	Sri G.Jagadeesh	Study of Solar Pumped Lasers for Space Applications.
57.	Ms. Papiya Mitra Mazumdar	Pharmacological & Toxicological Studies of Some Mycotoxins in Animals.
58.	Ms. Subrata Ghosh	Studies Exploring the Utility of DSC as an Instantaneous Predictor for Drug Excipited Compatibility.
59.	Ms. Swastika Ganguly	Syntheses and study of newer Imidazole Analogs.
60.	Sri P. R. P. Verma	Studies on Pharmaceutical Uses of Some Seed Gums.

#### STUDENT ACTIVITIES

Various cultural activities of the students of the Institute are traditionally organised by different students clubs and societies. At present there are 21 such societies and clubs in the Institute. A senior Professor as its in-charge supervises each one. All the students' activities of various clubs and societies are under the over-all supervision of the cultural Co-ordinator. A number of activities were organised by different clubs and societies in the year 2000-2001, the following is a list of the various clubs and society in B.I.T., Mesra which offer students in opportunity to channelise their creative energy:

BITOTSAV The annual cultural festival of the Institute-for the year 2000–2001 was

celebrated from 5<sup>th</sup> to 7<sup>th</sup> of February 2000. Sixty cultural events in all brought the best in the BITians in fields ranging from debating, quizzing, fine arts, music, writing etc. the most cappealing part of this festival was

the gyrating DANCE NITE and melodius MUSIC NITE.

Pooja committee This committee highlighted the religious and aesthetic part of life by

organising "Saraswati Pooja and Vishwakarma Pooja" relevent to learning

and Engineering education.

AudioVideo Education ClubLet the roller coaster take you on its ride with help from Bollywood every

Sunday in B.I.T. itself. "For the spice of life". The society craznising

Hallowood & Antyakshari in BITOTSAV-2001.

BITIN'S Nature Club "Engulf me in you, thy nature". Bathing the soul with the spirit of nature.

The society organising Nature Password & Nature Quiz in BITOTSAV-

2001.

Bhartiya Sahitya ParishadWe bring out the best of literacy talents and make you a a part of the rich

heritage that we are all proud of. The society organising Rachmatmak Lekhan, Vad-Vivad, Hindi Jam, Isharon hi Isharon Mein, Kavi Sammelan.

Dance Club We keep you on your toes. Come with us and dance your way to success.

Music club with the help of ROTRACT club arranged a "Music night" during BITOTSAV -2001. Both Eastern and Western Music and Songs were presented. Dance club gave a wonderful dance show during the festival. It was a heterogeneous mixture of Classical, Eastern and Western

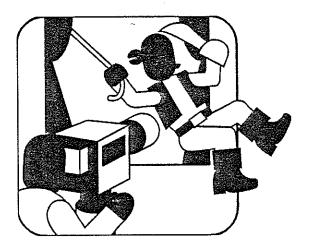
dance, and Solo-Bell-Melled. All events were performed at CAT.

Dramatics Society Life's but walking shadows, a poor player that struts and free his hour

upon the stage, and then is heard no more, it's a tale. "Drama is the image of life". The society organising Skit, Miming, Improvisation and chheenta-

kashi plays in BITOTSAV-2001

# Student Activities



Engineering Society

Runs an entire plethora of activities from mock G.D.s mock interview, specific updates and I.Q. tests. The society organised different kinds of events that were interesting and knowledgeful. The events conducted were Vateez Quiz, Tech. G.D. & Engg. Recycled.

Fine Arts Society

A place where a medley of sculpture and fine arts amalgamate, giving a new and creative dimensions to the various pursuits art. "We splash colors into your life". FAS organised FAS Rangoli, Painting, and AD Designing, and Sketching events during BITOTSAV-2001 and put an exhibition BIT, Mesra.

High lander Adventure ClubIf you have the spark of an adventurous spirit, come join us in the laughter brotherhood and enthusiasm, which binds us. "Sky is the Discovery of India, arranged successfully by limit".Adventure quiz and HAC.

H.A.M

Encoding the analog pulses you generate and the digital demons of the Morse codes, trenscievers and Department Telecommunication, Govt. of India. "One world, one language". The society organised Guess the Mess & Sail Thru successfully by H.A.M.

Going Scientists

Indian Association for College A forum to express the scientific faculties of the body and the soulhelping fresher's move seamlessly from simple computer systems to Technical computers networks. This association arranging Crossword, Blue Chip Quiz and Techanical Password the lines during BITOTSAV -2001.

I.E.E.E.

Split with the unified spirit of science into a gamut of scientific expressions along with weekly seminars and paper presentations. "Stay current with today's technology". This association arranging KBC & Tech.Cartooning.

Institutions of Engineers We give you the opportunity to bring out your technical abilities. This society is registered. This society is registered with the Society of Engineers, India in various disciplines of engineering curriculum.

Leo Club

The true Leo has proved to be organized but not obsessed: talented, but not pompous: loyal, but maintaining at all times a wicked sense of humour. Therefore, the unofficial quote; "No motto, all auto". The society organized Rapid fire, word pile and pictionary successfully.

#### Music Club

We capture all and make VIPs sway but ... Hey! You don't really have to be a master to join the fry. "The distinct sound of thunder". Music club with the help of ROTRACT club arranged a "Music night" during BITOTSAV -2001. Instrumental, both Eastern and Western Music Songs were presented.

# News and Publication Society

They say, "see no evil. Speak no evil. Hear no evil" somehow, they forgot to advise you against using your pen. Spill some ink and prove that the pen is mightier than the sword. We'll keep you on the information highway."the Information People". The News and Publication Society was involved in information sharing where it started its annual calendar of activities with the welcome information bulletin 'Bonjour' for the new batch. NAPS came up with magazine BITOTSAV-2001 and covered various sports and cultural activities with appropriate previews and reports. It was the point media manager for BITOTSAV-2001 with its involvement in Publicity, Publication, Creative writing, Heady lines, Soup D (P, F),Soup D. Press Conference, handling and compiling of all results of various competitions.

### N.S.5

N.S.S. volunteers in programmes aimed at "Janhit". We not only help the unprivileged but also spread knowledge and help make the world a better place to live in. "Not me, but you." The society organized Debate and Crisis Management successfully by N.S.S

#### O.B.S.A.

Come festival time and there goes B.I.T., painted red with banners and posters along with artistic designs that engulf you with enthusiasm and excitement that lasts all the way. The society organized Body Painting and Cartooning by O.B.S.A.

# Photographic Society

Capturing the flashes of moods and festivals. Let no emotions go unnoticed. "Lights. camera, action." "Photography was just a passing fancy" like the previous years; the society in this year also covered the various cultural activities, which took place at the different occasions. The society arranged Framing the Photo, PIC Speak, I Kaun, Quote the Pic Explore the world, an exhibition-'IMAGE-2001'- an exclusive display of colorful experiences during BITOTSAV-2001.

#### Rotaract Club

Whoever said that technocrats just can't freak out had apparently never experienced the Rotaract joyride. To enliven the spirit and spark, we bring you under one flag. "Interact with Rotaract." The society organized Dumb & Hard-shell successfully by Rotaract Club.

# Sports and N.C.C



SPIC MACAY

A movement dedicated to enriching education through the spread and appreciation of India's cultural heritage. "Let's relish that unmatched glory in true Indian spirit." The society organized Cultural Quiz & Inrovision and Essay Writing successfully by SPIC MACAY.

UNESCO Club

A dais to express the speaker in you, a reverie that takes you to the world intellectuals. From IITs to ISM UNESCO stays the flagship of B.I.T., The society organized Jam, open house debate, Turncoat, Elocution, Spin-a-Yarn & Four Men in a Boat successfully by UNESCO.

# Games, Sports & N.C.C

#### Games & sports

Irrespective of mass participation of students in Games & Sport activities there were specific programmes of intramural competitions in various teams of Games & Sport and Annual Sport meet.

- 1. (a) Intramural Tournaments in Football, Volleyball and Basketball are organised during Monsoon Session of the academic year 2000-2001.
  - (b) B.I.T. open best physique Competition in three Categories to adjudge Mr. B.I.T was organised. Mr. Gyaneshwar Kujur was declared Mr. B.I.T. for the session 2000-2001.
- 2. Institute Team in the following discipline of games and sports participated in Inter University Tournaments 2000-2001 during Monsoon session.
  - (a) Football
  - (b) Table Tennis.
- 3. East Zone Inter Technical Chetan Devraj Cricket Tournament was organised in November 2000 and B.I.T. Mesra retained the Championship.
- 4. The Annual Athletic meet (Track & Field) of the institute is Scheduled in spring session of 2000-2001.
- 5. The Intramural Tournaments in the following games are scheduled in spring session.
  - (a) Cricket \*
  - (b) Hockey
  - (c) Badminton
  - (d) Table Tennis
- 6. The B.I.T. open Tournaments are scheduled in following Games and constituted Institute teams would participate in inter University Tournaments during session 2000-2001.
  - (a) Badminton
  - (b) Tennis
  - (c) Chess

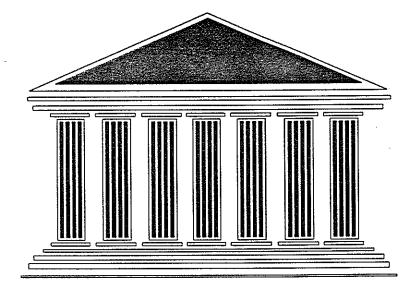
Apart from said activities; scheduled training programme in physical education, P.T. and Games, up to 4<sup>th</sup> semester students are running smoothly for the harmonious development of personality and physical fitness of the students.

7. Mr. Mahendra Kumar Assistant Professor Physical Education and Sports was selected to attend Orientation course in Physical Education organised by U.G.C. Academic Staff College and he attended the course from 3<sup>rd</sup> to 30<sup>th</sup> October 2000.

#### N.C.C.

A total number of 124 cadets were enrolled for N.C.C. in the year 2000-2001. The cadets of I<sup>st</sup> and II<sup>nd</sup> semester were given the basic training of drill, weapons 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. The senior cadets of IIIrd and IV<sup>th</sup> semester were given the specialized technical training in the area of Signals. EME and Engineers. Senior army officers have also been visiting the company from time to time and have appreciated the activities. The faculty members who are serving as Associate NCC officers have also updated themselves through participation in NCC refresher courses conducted by NCC directorate.

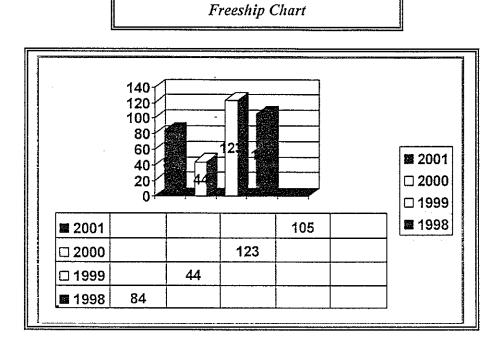
# Student Halls of Residence & Welfare Scheme



# 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 2000-2001 were 105



Freeship during year 1997-2001

#### Book bank:

Books are loaned to the needy students through book banks 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 separate hostels for girls. All the hostels are spacious and beautifully lay out in the serene and pleasant campus. The front portion has well maintained lawns with flowerbeds, elegant bushes and strategically planted ornamental trees. The interior of the hostel includes spacious Dining Halls, Common Rooms, Reaction Halls, and Photography Dark

Rooms located on both sides of the entrance. The rooms are constructed in a row with a wide veranda 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 student avails 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 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 tournament in indoor and outer games, quizes, competitions and adventure trips are 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 hostels.

# Training and Placement (Division)



# Training & Placement Division

The Training & 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 3800 graduates and post-graduates have been successful recruited through campus interviews during the past 19 years.

During 2000-2001, 40 premier, organizations visited the Institution offering 289 appointments to students from different disciplines. Some students have got offers from more than one companies. The majority of the organizations are offering starting salaries of ranges from 1.5 to 4.5 lacs per annum with an average of Rs. 2.5 lacs per annum.

Bio-datas and profiles of students of various disciplines (MBA, M.Sc. Bio-Medical Instrumentation, etc.) have been dispatched to potential employers, with positive responses.

The Training and Placement Division also encourages and assists students to go for industrial training during their summer vacations and winter break.

The summary of campus placements during 2000-2001 is as given below: Summary of campus placements, 2000-2001

	Branch	No. of Jobs
Dicipline		45
B.E	Mechanical	11
	Production	62
	Electronics & Communication	43
	Electrical & Electronics	28
	Computer Science	01
	Civil	04
	Polymer	
	B.PHARM	14
	B. Architecture	05
M. Degree	M.B.A	09
W. Degree	M.C.A	24
	M.PHARM.	08
1	Electronics	08
M.E	Mechanical	05
		07
	Electrical & Procketry	01
	Space Engineering & Rocketry	02
	Production	02
M.Tech.	REMOTE SENSING	1 07
M.Sc.	Information Science	02
M.Sc.	Bio-Medical Instrumentation	. 0

# TOTAL NUMBER OF APPOINTMENTS 285

The details of confirmed appointments offered to the outgoing students during 2000-2001 are as follows:

# Composite Campus Placement Status 2000 - 2001

Sno.	ORGANISATION	APPOINMENTS
1.	CADENCE DESIGN SYSTEMS(I) PVT. LTD. DELHI	04
2.	WIPRO TECHNOLOGIES, BANGALORE	51
3.	HCL PEROT, NOIDA	10
4.	HCL TECHNOLOGIES, NOIDA	12
5.	HCL SOFTWARE, NOIDA	07
6.	MOTOROLA, BANGALORE / DELHI	<b>l</b> 1
7.	TATA CONSULTANCY SERVICES, CALCUTTA	38
8.	SATYAM COMPUTER SERVICES, SECUNDERABAD	13
9.	INFOSYS, BANGALORE/ BHUWANESWAR	10
10.	I-FLEX SOLUTIONS LTD. BANGALORE	09
11.	L&T POWAI, MUMBAI	02
12.	SAMTEL	02
13.	COGNIZANT TECHNOLOGY SOLUTIONS,	11
	CALCUTTA	
14.	ITC-ISD, BANGALORE	05
15.	LUCENT TECHNOLOGIES	01
16.	TISCO, JAMSHEDPUR	05
17.	TATA INFOTECH, NOIDA	18
18.	TATA TECHNOLOGIES	06
19.	PATNI COMPUTERS, MUMBAI	05
20.	TELCO, JAMSHEDPUR	02
21.	TELCON	01
22.	EICHER GOODEARTH, DELHI	02
23.	LARSON & TOUBRO-ECC, CALCUTTA	NIL
24.	SCHINDLER, MUMBAI	02
25.	NIIT, CVALCUTTA	01
26.	HCL INFOSYSTEMS, NOIDA	09
27.	USHA COMMUNICATIONS, CALCUTTA	05
28.	MAHINDRA BRITISH TELECOM, MUMBAI	06
29.	PHARMAICA UPJOHN, GURGAON	12
30.	TATA TELECOME. DELHI/CALCUTTA	NIL
31.	PLANETASIA.COM, BANGALORE	08
32.	EXIDE, CALCUTTA	02

33.	TORRENT PHARMACEUTICALS, AHMEDABAD	08
34.	HLDIA PETROCHEMICALS, CALCUTTA	01
35.	INTERNATIONAL AUTO LTD, PUNE	. NIL
36.	ELI LILY RANBAXY, CALCUTTA/PATNA	· 01
37.	ESAB INDIA LTD, CALCUTTA/MUMBAI	03
38.	TISCO AUTOMATION DIVN, JAMSHEDPUR	NIL
39.	IMS, MUMBAI	NIL
40.	DAMODAR VALLEY CORP, CALCUTTA	05

		=
ii ii		1
	TOTAL NO. OF CANDIDATES SELECTED SO FAR 285	1
		_11

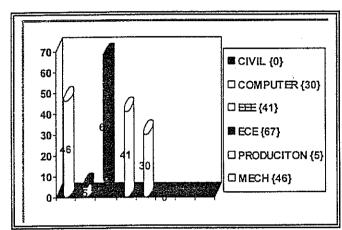
# Off-Campus Recruitment 1998-1999

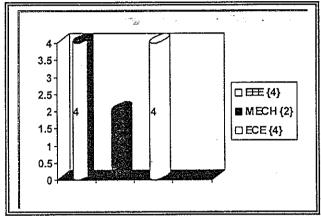
1.	TIMKEN INDIA LTD, JAMSHEDPUR	BE (MECH. AND PROD:)
2.	CMC LIMITED, DELHI	BE & ME (MECH. AND EEE.)
3.	SUN PHARMACEUTICALS, BARODA	MBA
4.	ITC TRIBENI TISSUES, CALCUTTA	M. PHARM.

### The other Organizations which had planned to visit / asked for biodatas are:

- ✓ ST MICROELECTRONIC, DELHI
- ✓ MM AQUA TECHNOLOGIES LTD, CALCUTTA
- ✓ VXL LANDIS &GYR LTD, JOKA (WB)
- ✓ THE TINPLATE COMPANY, JAMSHEDPUR
- ✓ VSNL, MUMBAI
- ✓ INDIAN AIRLINES LTD, NEW DELHI
- ✓ NATIONAL AEROSPACE LABORATORIES, BANGALORE
- ✓ XPRO INDIA LTD, FARIDABAD
- ✓ BLACK BURN & CO PVT LTD, MAHESTALA (WB)
- ✓ ASTELL SCIENTIFIC, NEW DELHI

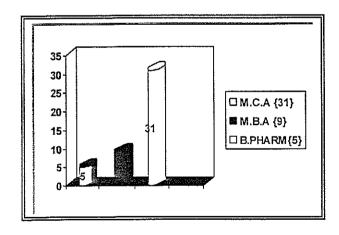
### PLACEMENT DURING 1998-1999

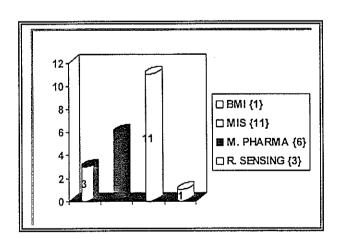




# BACHOLER OF ENGINEERING

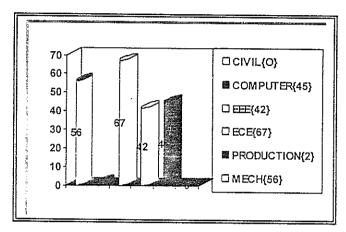
# MASTER OF ENGINEERING

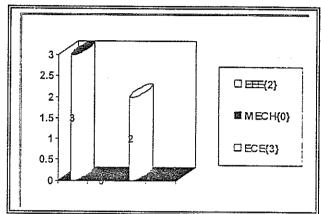




POST-GRADUATE

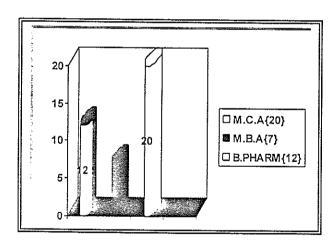
# PLACEMENT DURING 1999-2000

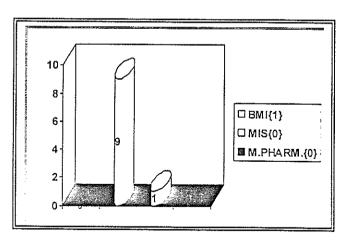




BACHOLER OF ENGINEERING

MASTER OF ENGINEERING

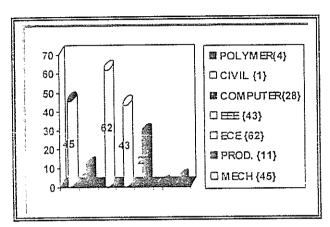


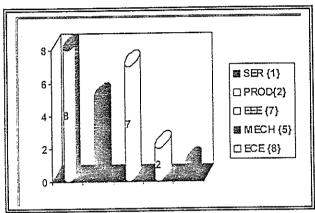


POST-GRADUATE



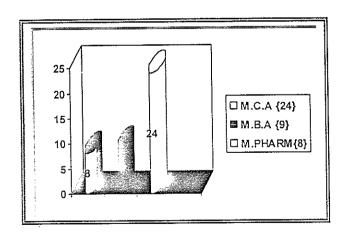
# PLACEMENT DURING 2000-2001

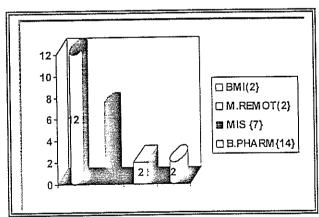




BACHOLER OF ENGINEERING

MASTER OF ENGINEERING





POST-GRADUATE

# Board of Governors

Chairman

: Sri G. P. Birla

Vice- Chairman

: Sri C .K. Birla

Members

Nominee of the Government of India Ministry of Human Resources Development : Jt. Educational Advisor (T) (Ex. Offico)

Nominee of the University Grants Commission

: Prof. S.K. Khanna

Nominee of the All India council for Technical Education

: Dr. M.D. Tiwari

Commissioner & Secretary Science & Technology

Government of Bihar, (Ex. Offico)

: Shri J. B. Tubid, IAS

Commissioner & Secretary, Higher Education

Government of Bihar, (Ex. Offico)

: Sri N. N. Pandey, IAS

Commissioner, Chotanagpur Division (south)

Bihar, Ranchi (Ex. Offico)

: Smt. Sheela Rapaj Kiskoo,IAS

Nominee of the Chancellor

: Dr. V. A. Pai Panandiker

Nominee of the Hindustan Charity Trust

Shri C.K. Birla Shri Deepak Chatterjee Dr. H.C. Pande

Vice-chancellor, BIT, Ranchi (Ex. Offico)

: Dr. S.K. Mukherjee

Members of Institute Faculty

: Dr. P. K. Mahanti Dr. S. K. Jain

Member's nominated by the General Council

: Shri D.N. Patodia Dr. P. Ghosh Shri G. P. Lal

Secretary

Registrar

: Dr. K. V. Krishnamurthy

Report-2001

#### Annexure

### TECHNICAL COUNCIL

#### Chairman

Vice-Chancellor, BIT, Mesra Ranchi (Ex. Offico)

Dr. S.K. Mukherjee

Members

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(upto31/1/2001)

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Prof. B. S. Rajeevalochanam

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Dr. D. Sasmal

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Prof. Ram Pal Singh Prof. N. Sengupta Prof. G.C. Singh Prof. B.K. Verma Dr. R.K. Popli Dr. B.N. Das

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Prof. A. K. Srivastava

Dr. S.S. Dhabriya/ Dr. M.S. Nathawat Prof. A. K. Ray

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Controller of Examinations : Dr. P.C. Joshi

Secretary

Registrar : Prof. K.V. Krishnamurthy

Report-2001

Annexure

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(from 9/8/2k)

Shri T.R. Ranganath Collaborative Research Programmes:

(upto 1/5/1998)

Dr. P. K. Barhai (from 10/7/2k)

Dr. P. Dhyani( upto1/5/1998) Extension Centres

Dr. P. K. Mahanti (from 10/7/2k)

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Departmental Heads/Incharges

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Dr. N.C. Mahanti **Applied Mathematics** 

Dr. P.K. Barhai **Applied Physics** 

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Production Engineering : Dr. S. Kumar

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Remote Sensing : Dr. M. S. Nathawat

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Continuing Education : Prof. Awadh Prasad

OSD & Controller Entrance Examination : Prof. S.P. Bhatnagar

Controller of Examination : Dr. P.C. Joshi

Co-ordinator Semester Programme : Dr. D. Sasmal

Finance (Comptroller) : Shri M.L. Verma

Library : Prof. G.C. Singh

Medical Officer : Dr. (Mrs.) C. Mishra

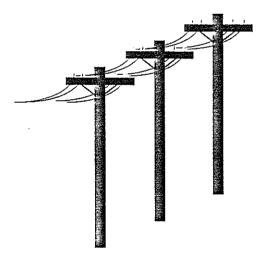
Nodal Centre : Prof. M.K. Saxena

Training & Placement : Dr. D. Jairath

Chief Warden : Dr. Gopal Pathak

Cultural co-ordinator : Prof. Ram Pal Singh

# Important Telephone Numbers



# IMPORTANT TELEPHONE NUMBER

no.	Name	Department	Phone No	Fax
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Fax: 695682

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B. M. Birla Science Centre Adarsh Nagar Hyderabad

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Technology Centre Lalpur Chowk Ranchi- 834001

Phone: (0651) 209827

Fax: 317682

Rani Birla Girls College 38, Shakespeare Sarani Calcutta - 700017 Phone: (033) 2870916

Fax: 2870916

BISR Campus
27, Malviya Industrial Area

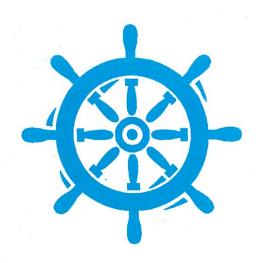
Jaipur 302017 Phone: (0141) 751457

Fax: 751601

Bahrain Extension Centre C/o Mohammed Jalal & Sons W.L.L Post Box-747, Manama Bahrain (A-Gulf) Phone: 00973404785

Fax: 00973254638

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