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## **Introduction**

### **Notable events in the year 2005:**

Foundation Day 2005 saw the conferment of Distinguish Alumni Awards on four alumni, who had notable achievements in their respective spheres of activity. In addition, “Lifetime Achievement Award” of the Institute and Faculty Awards were presented on this day.

43rd Convocation of IIT Bombay was held on Friday, September 16, 2005. The Chief Guest Shri Arjun Singh, Hon’ble Union Minister of Human Resource Development, delivered the Convocation address. Padma Bhushan Dr. Anil Kakodkar, Chairman, Atomic Energy Commission and Secretary, Department of Atomic Energy, Govt.of India was conferred the Degree of Doctor of Science (Honoris Causa) for his outstanding scientific achievements, at this convocation.

Teacher’s day, celebrated on September 6<sup>th</sup> 2005, Chief Guest Prof.P.V.Indiresan, former Director, IIT Madras presented the Best Teacher Award in Management and Manudhane Awards.

This year, Alumni Day was held on December 25, 2005 drawing over 344 alumni back to the alma mater. These included the large group of the class of '80 who were celebrating their Silver Jubilee Reunion. Class of '80 had targeted fund raising for a Legacy project to save the Powai Lake.

Prof. Misra presented the Distinguished Service Awards. These acknowledge the efforts of the Alumni who have successfully enhanced the IIT - industry interaction or contributed in notable ways towards the institute.

### **Projects**

During the year 2005, projects were implemented based on Donations received/Endowments created through funds generated through IIT Bombay Heritage Fund. Reports on details of the projects are appended along with.

In connection to endowment related activities it is however important to mention that with the increasing levels of integration of the Indian economy into the global pattern, yields on investments have dropped dramatically. This has made returns on several endowments inadequate to meet the originally stated purpose. The endowments on scholarships do not yield adequately to keep the scholarships at reasonable level. It has therefore become imperative for the key functionaries of IIT Bombay as well as the Directors of IIT Bombay Heritage Fund to look at some of the existing endowments and examine how best we can either ensure continuity of the original activity or integrate the activities between several endowments.

IIT,Bombay will be celebrating its Golden Jubilee from July 2007 to June 2008. A large number of events are to be organized and new projects are to be initiated during the GJ year. IIT, Bombay looks forward to receiving an active support and participation every kind from its Alumni and IITBHF for the grand GJ event.

Prof. R.K. Shevgaonkar.

**Suman Mashruwala Micro Mechanical Systems Laboratory  
Department of Mechanical Engineering**

**1. Introduction**

**The Suman Mashruwala MEMS laboratory development project with clear research and teaching deliverables has been undertaken in the department of Mechanical Engineering with the following objectives (see Figure 1 for theme):**

1. To create a laboratory to trigger the young minds of undergraduate students by exposing them to the world of micromechanical systems simulation and experiments.
2. To create the infrastructure needed to start fundamental and applied research in the areas of engineering design, manufacturing and thermal & fluid technology related to MEMS.
3. To create a unique state-of-the-art facility in the institute.

**The work is progressing well towards realization of these objectives. The 2<sup>nd</sup> yearly (finished on Apr 06) progress of the project is reported on the following aspects:**

- **Infrastructure**
  - Construction of new building and clean room
  - Equipment
- **Manpower**
- **Deliverables**
  - Product
  - Research: publications
  - Teaching
- **Budget**
- **Schedule**
- **Meetings, workshops etc.**
- **New proposals from the lab**

**Each of the following sections describes progress in each of the above aspects.**

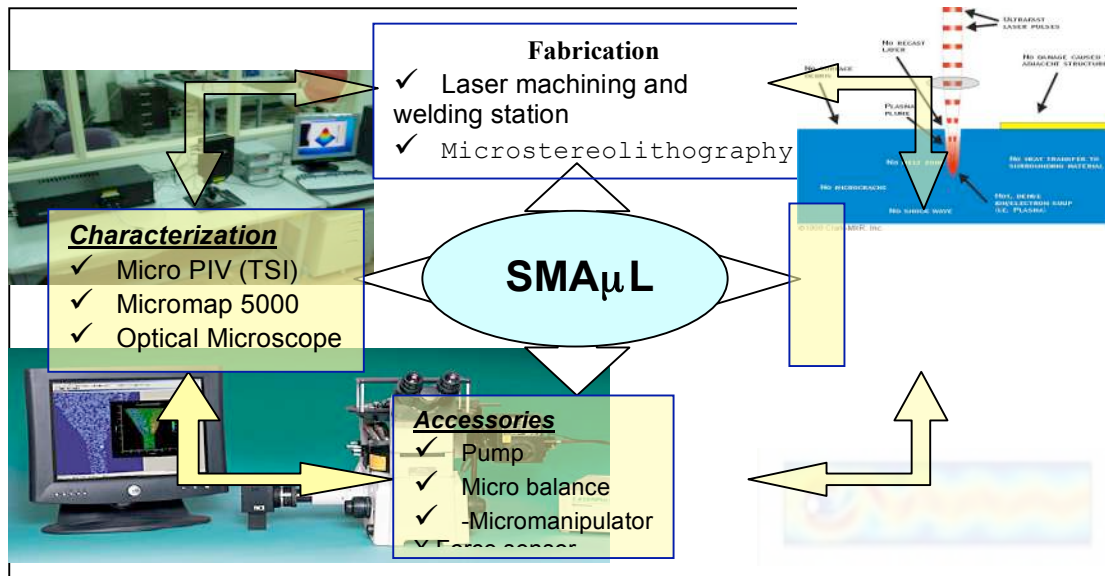


Figure 1 Theme of the proposed laboratory

## 2. Construction of the New Building

The new building construction is completed in all the aspects and building is already in use for excimer laser operations and microstereolithography research. The construction got delayed by almost 6 months because of the estate office inefficiencies.



(Building of SMA $\mu$ L)



(Clean Room in Progress)

Figure 2 Building of SMA $\mu$ L

### Clean room setup:

The clean room setup work is progressing well and on schedule given by the vendors. It is expected to be completed by the end of June 06. Then the other equipments can be moved in clean area and the temporary space can be available for other activities.

## 3. Equipments

The following subsections give the status of procurement and use of various equipments.

### 3.1 Fabrication

#### *Micromachining and Micro welding Station:*

The excimer laser facility is now fully functioning for past 6 months. It is being used to study excimer laser machining of polymers, silicon for biosensor applications. Also it was used in the course project of MEMS course in fall 05 for fabrication of micro mechanisms using transparency. In addition, a collaborative activity with BARC is going on to use it for machining spiral grooves in spherical cavity for ultra high speed bearings.

#### *Microstereolithography:*

The microstereolithography system is being built in-house. In first progress report, novel "on-axis" optical scanning mechanism for microstereolithography was proposed to get improved resolution in fabricated components. Novelty is in linear scanning of laser beam using flexible mechanisms for submicron positioning. Currently the subsystem level testing has been done and integration efforts are going on.

### 3.2 Characterization

#### ***Micro-PIV System:***

The system is found to have fundamental technical problems and not so good technical support from the vendor. The capabilities are less than we were promised by vendors.

#### ***Micro map 5000: (Laser interference based static and dynamic measurement tool)***

This system is already in place and in use for various measurements including cantilever biosensor and electrostatic pull-in instabilities.

### 3.3 Analysis

Both the analysis software's: CFD ACE+ and FEMLAB are being used for their device simulations.

### 3.4 Accessories

***Micro-sensors:*** Various sensors are procured as accessories for carrying our experiments.

***Six-axis force transducer:*** In the interest of budget this component is dropped.

***Microbalance:*** It has been in use for long time now.

***Micromanipulators:*** For electrical contacts with MEMS devices the micromanipulators are procured and being used.

## 4. Manpower

**Two new faculty members in various areas have joined the project during this year. Their areas of specialization are as follows:**

- **Bhalchandra Puranik: Micro heat transfer and 2 phase flows**
- **S. V. Prabhu: Microstructure mechanics**

Current Status:

**The following are details (project title along with the month of graduation) of students, research assistants and technicians working on the project:**

*Technical assistants: (salary through SML)*

- 1. Vinod Hande**

*Office assistant: (salary through SML)*

- 1. Mrs. Shamshad Khan**

*Research assistants: (M Tech 07) (salary through SML)*

- 1. Amit Rawool: “Experimental and Numerical Investigation of Fluid Flow through Microchannel” (SM)**
- 2. Vishal Barde: “Development of Micromachining Processes using Excimer Laser”(SSJ)**

*Institute RA: (M Tech 08)*

- 1. Amit Pathak**

*Ph.D. students:*

- 1. Suhas Deshmukh: “Design and Analysis of Microstereolithography” (PSG)**
- 2. Nitin Banait, “Modeling and Development of Micro-Electrochemical Machining Process”, (SSJ)**

3. **Auro Saha “Microchannel fluid flows” (SM)**
4. **Rahul Shukla “PiezoMEMS based energy scavengers” (PSG)**
5. **Prabhakaran “Biosensor based on magnetic Nanoparticles” (DB, Soumyo M, PSG)**

*M.Tech students:*

***Finished July 05***

1. Vinod Patil: “Mechanical Characterization of Amorphous Silicon Alloy Thin Films” (PSG & ROD, Met.)
2. Yonas Tegegn: “Development of Experimental Setup for CDROM Drive Demonstration” (PSG)
3. Vivek Nalawade: “Analysis of Microcantilever-based Biosensor” (PSG)
4. Vikas Nair: “Static and Dynamic Characterization of Microdevices” (PSG & BS)
5. Shashikant Dubey: “Simulation of Optical Systems for MEMS Application” (PSG)
6. R.K. Sarangi: “Modeling of Two Phase Flows in Microchannel Heat Sinks” (AB)
7. Chaitanya Kulkarni: “Finite Element Analysis of Pull-in Instabilities in Electrostatic Micro-actuators,” (DNP)
8. Niranjana S. Chavan “Analytical and Experimental Investigation of Flow Instabilities during Boiling in Microscale” (AB)

***Finishing July 06***

1. **Anil Sharma: “Analysis of Biosensors” (SKM & PSG)**
2. **Srinivasa Rao: “Surface damping in Microresonators” (DNP)**
3. **Samarth Raut: “Stabilization of Instabilities in Electrostatic Micro-actuators” (DNP & PSG)**
4. **Prakash Sondawale: “Analysis of microcantilever based biosensors” (DNP & PSG)**
5. **Pranjal Shukla: “Measurement of MEMS based xy nanostage” (PSG & DNP)**
6. **Priyadarshan Patankar: “Fluid flow and Heat Transfer in Microchannels”(BPP)**
7. **Rajbir Singh: “Non-Newtonian fluid flow in Microchannel” (SVP)**

***Finishing July 07***

1. **Mahesh Thorat: “New method for layer preparation in microstereolithography” (PSG)**
2. **Abhishek Modi: “MEMS based mechanical logic gates using flexures” (PSG & CA)**
3. **Rohit: “Control of flexure mechanisms for MEMS” (PSG)**
4. **Amit Srivastava: “Development of 2D-3D microstructures using Excimer based mask projection technique for Ceramic material”(SSJ)**
5. **Niranjana M. Avate: “Vibrational Damping in MEMS Devices” (DNP)**

***B.Tech students:*** Several have already graduated in May 05 and about 4 will be graduating this year from the lab.

As we see the team is very strong with 2 RAs, 1 TA, 5 PhD, more than 20 M.Tech, and several B.Tech students working on the topics related to the research deliverables of SML project or topics of future expansion of the lab.

## 5. Deliverables

Deliverables identified for the first three years of the project are categorized into mainly three parts:

- A. Product deliverables
- B. Research deliverables
- C. Teaching deliverables

### A. Product Deliverables

1. *Working microstereolithography setup (PSG)*: Work is going little slow since PSG is not in country.
2. *Development of polymer meso-mechanisms with flexure joints (PSG, SSJ)*: We have fabricated mechanisms for nanopositioning stage and its being tested. 3D mechanisms could be fabricated once microstereolithography machine is ready.
3. *Design and fabrication of micro heat exchangers (BPP, AA, SVP)*:

This work has received a setback because of AB's resignation but fortunately BPP and AA are looking at the problem and conducting experiments.

### B. Research deliverables

4. Flow characterization using MicroPIV (AA, previously SM):  
Our attempt to obtain data using the micro-PIV setup was unsuccessful, even after substantial effort from student + AA side. The data could not be obtained even in the case of a minichannel.
5. *Experimental and numerical investigation of fluid flow and heat transfer in microchannel heat sinks (AA, BPP, SM, SVP)* :

The large-scale integration of electronic circuits has resulted in a continuous increase in power dissipation. This has necessitated the development of new and highly efficient thermal dissipation solutions. One of the cooling technologies that have gained importance in recent years is microchannel heat exchangers. In the Suman Mashruwala Lab, we are trying to characterize fluid flow and heat transfer in these microchannels with a focus on electronic cooling applications. We plan to conduct analytical and experimental studies on single phase and two-phase forced convection in microchannels using water as the fluid medium. Following are faculty wise results of the work carried out so far.

AA:

1. Fabrication and sealing of microchannels has been accomplished (by a PhD student jointly with Profs. Puranik and Duttagupta) and preliminary experiments of boiling heat transfer have been conducted.
2. Simulations of gas flow through microchannels have been studied for several different geometries. Our first paper from this work has appeared in the prestigious Journal of Fluid Mechanics; other works have been presented in international conferences and submitted for publication in journals.
3. An experimental facility to measure the slip coefficients in gas flows through microchannel has been put together (with the help of Prof. Prabhu) and preliminary measurements have been made.
4. Theory for gas flow through microchannels has been derived and submitted to an International journal for publication.



BPP:

A numerical model to simulate two-phase boiling flow in microchannels has been developed. The model assumes annular flow to be the dominant flow regime within the microchannel. The model has been applied to a problem of parallel microchannel heat sink geometry with non-uniform heat input. A paper written to document the results of this work has been accepted for presentation in the Fourth International Conference on Nanochannels, Microchannels and Minichannels to be held from June 19 to June 21, 2006 at the University of Limerick, Ireland.

SM:

Research is conducted in understanding flow in microchannels, which are applicable for micro-fuel cells. Special micro-scale features like surface roughness and electro-osmosis have been investigated. Use of micro-PIV to understand flow with electro-osmosis is performed. A microfluidic device for species detection has been designed. Different processes for fabrication of microchannels are also carried out.

6. *Experimental and theoretical investigations using laser based microfabrication facility:* Experimental investigations on process control and optimization for the fabrication micro-features on plastics and polymers have been undertaken. Process for fabrication of polymer biosensors have been developed and are being used for biosensor mechanics research.

So far the following papers have been published through various research activities pertaining to the lab:

#### **Publications:**

1. Gandhi P.S., and S. Venkatakrishnan, "Design and Analysis of a Scanning  $\mu$ SL System with an Off-axis Laser Beam," Proceedings of the Third National Conference on Precision Engineering, CMTI, Bangalore, India, Dec., 2003, pp 39-48.
2. Rane T.D. and Gandhi P.S., "Modeling and Simulation of Cantilever Biosensor (for MI) Based on Molecular Electrostatic Interactions," to appear in the Proceedings of SPIE conference, Photonics West 2005, San Diego, CA, Jan. 22-27, 2005.
3. A. Agrawal, L. Djenidi, and R.A. Antonia (2005), "Simulation of gas flow in microchannels with a sudden expansion or contraction," Journal of Fluid Mechanics, Accepted/ to appear.
4. A. Agrawal and A. Agrawal (2005), "Three-dimensional simulation of gas flow in microducts," to appear in Proceedings of the 3<sup>rd</sup> International Conference on Microchannels and Minichannels, Toronto, Canada, June 2005.
5. A. S. Rawool, S. K. Mitra and S. G. Kandlikar, "Numerical simulation of flow through microchannels with designed roughness", *Microfluidics and Nanofluidics*, DOI: 10.1007/s10404-005-0064-5, 2005.
6. A. S. Rawool and S. K. Mitra, "Numerical simulation of electroosmotic effect in serpentine channels", *Microfluidics and Nanofluidics*, DOI: 10.1007/s10404-005-0076-1, 2006.
7. A. S. Rawool and S. K. Mitra, 'Numerical simulation of flows through microchannel in bi-polar plates', paper # ICMM2005-75251, ASME International Conference on Micro and Mini Channels, Toronto, Canada, 2005.

8. Bhattacharya A., 2004, "Analysis of Two Phase Forced Convection in Microchannels for Electronics Cooling", Proceedings of 1st European Micro and Nano Systems Conference, Noisy le Grand (Paris), France, Oct. 2004, pp. 137-141.
9. Chavan N. S., Bhattacharya A., and Iyer Kannan, 2005, "Modeling of Two Phase Flow Instabilities in Microchannels", submitted to the 3rd International Conference on Micro and Minichannels (under review).
10. Agrawal A., Bhattacharya A., and Agrawal Abhishek, 2006, "Flow Patterns and Pressure Drop in different Microchannels and Microbends", submitted to the 8th National & 7th ISHMT-ASME Heat and Mass Transfer Conference (under review).
11. Gandhi P.S., Rane T.D., Nalawade V.S., "Modeling and Simulation of Cantilever Biosensor (for MI) based on Molecular Electrostatic Interactions" Proceedings of the SPIE Symposium on MOEMS-MEMS Micro & Nanofabrication (Microfluidics, BioMEMS and Medical Microsystems III), San Jose, CA USA, Jan 2005.
12. Nalawade V.S., Maiti S.K., Gandhi P.S., "Analysis of Microcantilever Sensors Subjected to Nonuniform Surface Stress", Proceedings of the International Conference on Computational and Experimental Engineering and Sciences, IIT Madras, Dec 05.
13. S. P. Desmukh, S. Dubey, and Gandhi P.S., "Optical Analysis of scanning Microstereolithography Systems" Proceedings of the SPIE Symposium on MOEMS-MEMS Micro & Nanofabrication, San Jose, CA USA, Jan 06. (to appear)

### **C. Teaching Deliverables**

*Development of theory courses and lab experiments for training undergraduate and post-graduate students in this area*

- An elective "ME 645: MEMS : Analysis, fabrication and characterization" was run this time with added lab component for course project and demo.
- Development of laboratory experiments is in progress. Additional setup for fabrication of microchannels is being planned.

## 6. Budget

The following table gives the status of the expenditure so far for the project.

		Total 3 years		
		Budgeted	Actual till	
		Rs. In lakh	May 06	Difference
<b>Equipments</b>				
A. Fabrication				
I	Laser Gun, with precision xy table (for machining)	118	119	-1
II	Microstereolithography Setup (Laser + Galvano scanning mirrors, high power optical components DAQ system)	36	35	1
B. Characterization				
	High resolution optical microscope with attachments		7	-7
II	Micro PIV system from TSI	79	67	12
III	Laser Interferometer measurement (micromap 5000) SEM (institute facility will be shared)	33.9	59	-25.1
C. Analysis				
	Software FEMLAB (3 licences)	4	4	0
	Software CFD-ACE+ (1 licences)	1	1	0
	Computational facility	6	5.2	0.8
D. Clean room facility				0
	Class 10000 clean area with class 1000 clean benches	46	30	16
	<b>Total equipments (3 years)</b>	<b>323.9</b>		323.9
<b>Consumables and accessories</b>				
E. Accessories				
	Precision micro-weighing balance	2.5	1.4	1.1
	Six-axis force sensor	5		5
	Other accessories	10	1.2	8.8
	MEMS accelerometers, gyroscopes, pressure sensors temperature sensors, and other available MEMS sensors			
	Tools for MEMS handling,			
F.	Consumables	7	0.6	6.4
<b>Contingencies</b>		4	5	-1
<b>Travel (FDF)</b>		0		
<b>Salaries</b>				
	Post doctoral fellow (institute supported)			
	Technician + office staff	5.4	2	3.4
	2 RAs	7.2	2.5	4.7
	<b>Total</b>	<b>365</b>	<b>339.9</b>	
	<b>GRAND TOTAL (considering tax+freight)</b>		<b>370.7</b>	

\* Note: Rs.15 lakhs of the total budget are provided from the MHRD project (PSG) and Rs. 8 lakhs from project with (SM). There are contributions continuing from the newly granted projects with BPP and UVB.

As it can be observed budget has already overflow by approximately Rs.6 lakhs. This is because of several reasons including the forex fluctuation + purchase of some big equipment with saving from other equipments to make optimum utilization of available funds.

## 7. Plan of execution

7.1 Development of infrastructure: **(responsibilities identified in Section 2)**

The proposed plan was,

0-6 Months

- ✓ Procurement of various equipments, software, sensors and actuators for  $\mu$ SL.
- ✓ Initial the activities for testing and setup installation.
- ✓ Start setting up clean room area.
- ✓ Recruiting principal scientist and RAs for the project.
- ✓ Get the infrastructure needed for various equipments ready.

6-12 Months

- ✓ Installation and testing of various equipments (Micro PIV, SEM, Laser, Micromap 5000) and software (FEMLAB, CFD-ACE+).
- ✓ Training of the research staff.
- Setting up clean rooms and benches.
- ✓ Development of software programs and benchmarking.
  - Activities completed
  - In progress.

12-24 Months

- ✓ Installation and testing of various equipments (Laser, Ar+ laser).
- ✓ Annual maintenance of installed equipment.
- ✓ Exposure of students to the equipment.

## 7.2 Deliverables

0-12 Months

- Preliminary experimental design, execution and optical and SE microscopic evaluation of thermal damage for machined and welded products using laser-based manufacturing.
- ✓ Initial design, simulations and manufacturing process planning of various components needed for microchannel fluid dynamic and thermal experiments.
- ✓ Analysis and modeling of single phase and two-phase flows of Newtonian fluids in microchannels.
- ✓ Familiarity and hand-on experience on simulation software (FEMLAB, CFD-ACE+).
- ✓ Detailed design of microstereolithography and procurement of necessary components.
- ✓ Development of opto-mechanics needed for microstereolithography.

- ✓ Developments of software for sending stereolithography (.STL) file to the hardware for generation of microcomponent.
- Preliminary integration and testing of subsystems for microstereolithography.

#### 12-24 Months

- Use of laser based precision manufacturing facility to analyze and develop the process for machining of complex contours and joining of ultra-thin (100  $\mu\text{m}$ , 300  $\mu\text{m}$  and 500  $\mu\text{m}$ ) uncoated and coated metallic sheets and features with high aspect ratio on conducting materials.
- Development of preliminary theoretical models to understand the experimental findings on laser based micro-fabrication. (*these activities are delayed because of SSJ being on sabbatical*)
- ✓ Familiarity and hand-on experience on MicroPIV facility.
- ✓ Experimental set-up of the microchannel heat sink characterization involving comparison of pressure drop and heat transfer rates with analyses/simulations.
  - Integration and testing of micrtereolithography.
  - Development and initial testing of test polymer micro-components. (*these activities are delayed because of PSG being on BOYSCAST fellowship*)
- ✓ Development of theoretical and laboratory courses on various aspects of MEMS.

#### Additional activities not proposed

- ❖ Fabrication of MEMS nanostage collaboration with UB, Colorado.
- ❖ Fabrication of polymer cantilevers for biosensor
- ❖ Research on various things mentioned previously

## 8. Workshops and Meetings:

**One day retreat:** Summary One day retreat was organized at Karnala to carry out critical evaluation of the project. Following are some salient points

Strengths:

- People, coherent research group, team efforts
- Areas of research diverse and complementary to VLSI based MEMS
- Guidance from faculties like Prof Sukhatme, Prof AM,
- Students brilliant

Weaknesses

- Bio / material kind of faculty.
- Outside world students coming from: No interdisciplinary exposure which is imp for MEMS
- Students: PhD level
- Industrial interaction not very strong at this moment
- Collaborative efforts: Not very actively pursued
- Infrastructure development slow
- Management system for equipments and their use by students
- MEMS not known to many outside IIT

## 9. New Proposals for Generating More Funds:

Following contract research grant is obtained for the lab:

1. Development of experimental facility for fabrication of coated nanoparticles. (PI:UVB)

**2. Modeling, Flow visualization and validation of PAFC and PEM Fuel Cells - Project funded by Naval Materials Research Laboratory, DRDO, Ambarnath, India with an initial funding of Rs.43.68 lakhs (\$97,000 USD) for two years.**

In addition several proposals are being in development or under consideration. An institute-wide proposal jointly with UCB systems in the area of nanotechnology is being developed at UCB by PSG.

### FINANCIAL STATEMENT :

#### Funds received through IIT Bombay Heritage Fund

Donor	Date of receipt	Amount USD	Amount Rs.
Rajesh Mashruwala	1 <sup>st</sup> July 2004	100,000	45,62,000
	1 <sup>st</sup> July 2004	400,000	1,84,56,000
	9 <sup>th</sup> March 2005	400,000	1,73,84,000
<b>Total</b>		<b>900,000</b>	<b>4,04,02,000</b>

#### B: Expenditure Statement

Nature of expenditure	Expenditure up to 2005
Equipment	1,46,54,611
RA fellowship	2,16,758
Salaries	1,11,794
General expenses	4,03,885
<b>Grand Total</b>	<b>1,53,87,048</b>

**Total funds received** Rs. 4,04,02,000

**Total expenditure incurred up to Dec 31, 2005** Rs.1,53,87,048

**Balance:** Rs. 2,50,14,952

Equipment for about Rs.1,91,00,000 was committed through opening LCs and Purchase Orders and will be paid during the year 2006.

## 10. Acknowledgements

Authors would like to acknowledge support of the institute for the project at various levels: particularly support of HOD, ME, Prof. Gaitonde, Prof Ghosh, and Prof Shevgaonkar. Authors are thankful to discussions with Prof Sukhatme during initial period, and with Prof Majumdar (UC, Berkeley) during project execution.

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## AVINASH MANUDHANE DONATION FOR CHEMICAL ENGG. DEPT.

### Activity Report for the year 2005 – Implementation of Indira Foundation Project

The Phase I of the Indira Foundation Project included the following actions as per the memorandum of understanding (MOU):

1. U.G. Laboratory up-gradation
2. Classrooms up-gradation
3. Instituting the excellence awards
4. Postgraduate Research Laboratory up-gradation
5. Instituting Chair-Professorship

Out of the above, the first three activities were undertaken for immediate implementation. The progress status of each of these activities is as follows:

#### 1. Status of UG Lab up-gradation

Following is the progress made on various fronts:

- 1.1 **Renovation of S2 bay:** Renovation was completed in the early part of the academic year.
- 1.2 UG labs shifting to S2 bay: The existing set-ups have been shifted to the S2 bay and commissioned. UG labs have been conducted at the new location in the academic year 2005-06.
- 1.3. New equipment: Following are some of the new set-ups procured / fabricated.
  - a) Ion exchange / absorption
  - b) Liquid-liquid extractor
  - c) Gas-liquid contactor
  - d) Measurement of Reaction kinetics
  - e) Multipurpose reaction engineering rig with experiments on performance of CSTR, PFR and their combinations, residence time distribution etc.
  - f) Fluidised bed dryer
  - g) Interacting level control set up
  - h) Non-Interacting level control set up
  - i) Stirred tank heater set-up (2 rigs)
  - j) Friction factor set-up
  - k) Cooling Tower



Some more experiments are nearly ready and are expected to be available in the academic year 2006-07.

1.4 Other items: Following product / plant models have been procured:

- a. Product models: Distillation column and shell and tube heat exchanger.
- b. Plant models: Modern refinery, sulfuric acid plant (will be ready by August end)
- c. UG lab Library books: The UG lab library is now well stocked with standard references material.
- d. A single exhaustive laboratory manual on UG lab at IITB has been prepared.
- e. Video clips on several experiments are ready; more are on the arrival
- f. 30 computer machines have been set-up for the UG lab computer room in S2-bay.

## 2. PG Classrooms:

One large classroom (Room 230) and 3 smaller classrooms (228, 235 and 301), respectively for Postgraduate core and elective courses were taken up for renovation. The work is complete for the furniture, which will be put in place in the summer of '06 so as not to disturb teaching. All the classrooms are in use from the beginning of Academic year 2005-06, and in fully functional form, Jan. '06.

The work is being carried out by the same architect who renovated the UG classrooms.

## FINANCIAL STATUS

### Funds received through IIT Bombay Heritage Fund

Donor	Purpose	Date of receipt	Amount USD	Amount Rs.
Avinash Manudhane(Indira foundation)	For Chemical Engg. Dept. Project	1 <sup>st</sup> July,2004	25,000	11,40,500
Avinash Manudhane(Indira foundation)	For Chemical Engg. Dept. Project	21 <sup>st</sup> March 2005	125,000	54,00,000
Avinash Manudhane(Indira foundation)	For Chemical Engg. Dept. Project	10th Nov. 2005	125,000	57,05,287
<b>Total</b>			<b>400,000</b>	<b>1,22,45,787</b>

### Expenditure details:

Particulars	Amount Rs.
<b>Nature of Expenditure:</b>	
Civil work	22,25,454
Equipment/ General expenses	30,28,773
Committed expenditure for Civil work & Purchase Orders	69,91,560
	<b>1,22,45,787</b>

### 3. Instituting the excellence awards

Avinash Manudhane contributed US\$125,000 (Rs. 56,33,605) towards endowment for excellence awards. As per the memorandum of understanding the following awards have been instituted for the year 2005 (The names of awardees are also reported below):

#### Student Awards:

- i. Indira Manudhane B.Tech. Student Excellence Award 2005  
**Kukar Varoon**
- ii. R.G. Manudhane M.Tech. Student Excellence Award 2005  
**Karra Srinivas**
- iii. R.G. Manudhane Ph.D. Student Excellence Award 2005  
**Malkhey Verma**

#### Faculty Awards:

- i. Indira Manudhane Best Undergraduate Teacher Award 2005  
**Prof. A.S.Moharir**
- ii. Indira Manudhane Best Postgraduate Teacher Award 2005  
**Prof. D.V. Khakhar**  
**Prof. Sachin Patwardhan**
- iii. R.G. Manudhane Faculty Research Excellence Award 2005  
**Prof. H.S. Shankar**
- iv. Indira Manudhane Applied Research Project Award 2005  
**Prof. R.K.Malik**  
**Prof. A.S. Moharir**  
And jointly to  
**Prof. V.A.Juvekar / Prof. R.D. Gudi**

The student awards were given away during the Convocation in August 2005. The faculty teaching awards were given away on the Teacher's day, and the faculty research awards on the day of ChEA one-day Symposium 2006.

### Investment details

Amount invested	Financial institution/Bank	Date & Period of investment	Rate of interest	Interest earned in 2005
56,33,605	GOI Bonds	20/2/2004 for 6 years	8.00%	4,50,688

### Utilization of Funds

#### Excellence Awards

Indira Manudhane B.Tech. Student Excellence Award 2005	Rs. 20,000
R.G. Manudhane M.Tech. Student Excellence Award 2005	Rs. 10,000
R.G. Manudhane Ph.D. Student Excellence Award 2005	Rs. 20,000
Indira Manudhane Best Undergraduate Teacher Award 2005	Rs. 70,000
Indira Manudhane Best Postgraduate Teacher Awards 2005	Rs. 40,000
R.G. Manudhane Faculty Research Excellence Award 2005	Rs. 40,000
Indira Manudhane Applied Research Project Award 2005	Rs. 90,000

**Total Expenditure** **Rs.2,90,000**

Interest earned in the year 2005 Rs 4,50,688

Balance b/f Rs 1,64,334

**Total funds available** **Rs 6,15,022**

**Balance of Rs 3,25,022 will be c/f for the year 2006.**

4. Concluding remarks and future course: Work on the various aspects of the project proceeded apace during 2005 to concentered attention by several faculty and staff involved.

Phase I activities are thus nearly completed. The work remaining concerns PG / Research lab up-gradation and utilization of funds earmarked for Chair Professorship. On the former, a proposal will be sent shortly for Avi's views have been discussed with Avi. We have also discussed a broad proposal for a Membrane Science & Technology Centre towards part funding of which these moneys could be utilized. More details and a proposal on this will follow.

## **WADHWANI ELECTRONICS LABORATORY IN THE DEPARTMENT OF ELECTRICAL ENGINEERING**

### **Background:**

The Wadhvani Electronics Lab (WEL) was formally inaugurated by Dr. Romesh Wadhvani on February 12, 2001. This laboratory has significantly enhanced the electronics related activity in the EE Department both qualitatively and quantitatively. Several new instruments of the low-end type have been purchased from the Wadhvani donation fund to serve UG as well as PG students working in the WEL. A few high-end instruments have also been acquired, and these are being used for special requirements. A large number of PC's(38) have been purchased to facilitate PCB design, programming of FPGA chips, accessing data sheets on the Internet etc.

Broadly, the following activities are supported by WEL:

- 1) Electronics Lab courses (Digital circuits, Electronic Devices & Circuits and Analog circuits) for UG students, 2<sup>nd</sup> and 3<sup>rd</sup> year.
- 2) Electronics Design Lab, which involves a number of novel projects carried out by 3<sup>rd</sup> and 4<sup>th</sup> year students. This activity is expected to result in commercial products in next few years time.
- 3) Microprocessor Lab course (UG, 3<sup>rd</sup> year).
- 4) Embedded Systems Lab (M. Tech.)
- 5) Techfest activities during which students (from IIT and other colleges) participate in an Electronic Design Competition.

Many of the activities had not been possible earlier (at least not on the same scale), because of infrastructural limitations or sometimes simply because the various electronics activities were physically apart. WEL has made it possible to bring almost the entire Electronics activity in EE under one umbrella. This has also boosted the enthusiasm among students.

WEL currently caters to over 700 students every year. The lab has a large variety of Microprocessor kits, cross assemblers and other utilities for these processors, single-board

computers, online EPROM programmers, logic analysers; and in-circuits emulators, for use in the Microprocessor lab course. WEL also supports experimental instruction in analog and digital circuits and projects in electronics design and is equipped with the latest series of oscilloscopes, function generators, FPGA programmers, digital multimeters etc.

Equipments purchased during the year 2005.

**Orders placed in 2004,**

Digital Storage Oscilloscope	4
Dual Channel Signal Analyzer	1
Dual Phase lock in Amplifier	1
Weller Soldering Station	3

**Funds received**

Name of the donor	Date of Receipt	Amount received from IITBHF (USD)	Amount realized (in Rs.)
Dr. Romesh Wadhvani	June 13, 2000	115,000	51,30,624
Dr. Romesh Wadhvani	March 8, 2002	30,000	14,59,800
Dr. Romesh Wadhvani	July 1, 2004	115,000	52,46,300
<b>Total</b>		<b>260,000</b>	<b>1,18,36,724</b>

**b) Expenditure statement**

S.No.	Particulars of expenditure	Total expenditure upto 2004 Rs.	Expenditure in 2005 Rs.	Total Expenditure Rs.
1.	Civil and Electrical work	23,12,890	00	23,12,890
2.	Laboratory Equipment	49,59,844	18,54,935	68,14,779
3.	General Expenses	5,98,949	2,56,276	8,55,225
4.	Electronic Design projects	8,50,000	3,50,000	12,00,000
5.	Furniture & Fittings	1,18,582	19,250	1,37,832
	<b>Total</b>	<b>88,40,265</b>	<b>24,80,461</b>	<b>1,13,20,726</b>

<b>Total amount received</b>	<b>Rs. 1,18,36,724</b>
<b>Total expenditure incurred upto Dec 31, 2005</b>	<b>Rs. 1,13,20,726</b>
<b>Balance C/F for the year 2006</b>	<b>Rs. 5,15,998</b>

**Dr.Romesh Wadhvani donated US \$ 25,000 (Rs.10,59,588) in the year 1999 towards Endowment for Chair Professor in Entrepreneurship.**

**A: Funds received through IITBHF**

<b>Donor</b>	<b>Year</b>	<b>Date of receipt</b>	<b>Amount US \$</b>	<b>Amount Rs.</b>
Dr.romesh Wadhvani	1999	19th January, 1999	25,000	10,59,588
<b>TOTAL</b>			<b>25,000</b>	<b>10,59,588</b>

**B: Investment details and Interest earned**

<b>Amount Invested</b>	<b>Financial Institution/Bank</b>	<b>Date &amp; Period of investment</b>	<b>Rate of Interest</b>	<b>Interest earned upto 2005</b>
10,59,588	The South Indian Bank	31/12/2002 for 5 years	7.50%	8,72,127

## GIRISH GAITONDE SEMINAR HALL COMPLEX

### A Report on the Activity Supported by the Grant from Mr.Girish Gaitonde

*The donation made by Mr. Girish Gaitonde to the Electrical Engineering Department of IIT Bombay has been used to create various assets. These include a new building and three research laboratories.*

*Head of the EE Department oversees the activities enabled by this grant. Development of the VLSI systems laboratory is being managed by Prof. M P.Desai and Prof. V.R. Rao. Prof. Abhay Karandikar is in charge of the proposed Information Networks laboratory. Prof. B.G. Fernandes looks after the development of the Power Electronics Laboratory. Prof. A.N. Chandorkar is in charge of the building activities. Prof. D.K. Sharma has acted as the overall coordinator for these activities.*

*During the last semester or so, activities have been centred around the new Girish Gaitonde building, which was inaugurated on the 8th October, 2004. Teaching has shifted to the new building from last year and incremental work for installation of projection and audio systems and for improvement of lighting and acoustics is completed. Paving work for the footpath outside has been completed.*

*The top floor of the building will house laboratories on VLSI Design, Broadband communications and nanoelectronics.*

*The department library is situated on the 4th floor of the building. The library has already started functioning from this new location.*

*A detailed expenditure report for the building is attached.*

*The details of expenditure figures in respect of the above work, are furnished below:-*

<i>Works Completed</i>	<i>Rs. .in Lakhs</i>
1. <i>Civil and PH Works for entire building + Electrical work for Ground + 3 floors (As per Final bill of M/s. A.K. Construction Co.)</i>	<i>Rs. 291.05 lakhs</i>
2. <i>Mural work in the Main Entrance</i>	<i>Rs. 0.50 lakhs</i>
3. <i>Miscellaneous Civil work carried out at the time of inauguration of the building (painting foot path etc.)</i>	<i>Rs. 0.75 lakhs</i>
4. <i>Passenger lift (Elevator)</i>	<i>Rs. 11.00 lakhs</i>
5. <i>Electrical works (4<sup>th</sup> and 5<sup>th</sup> floor)</i>	<i>Rs. 9.50 lakhs</i>
6. <i>Aluminum Partition in 4<sup>th</sup> and 5<sup>th</sup> floor</i>	<i>Rs. 5.50 lakhs</i>
7. <i>Architect's fees (M/s JTCPL)</i>	<i>Rs. 11.00 lakhs</i>
8. <i>Furniture and class room Benches</i>	<i>Rs. 23.50 lakhs</i>
9. <i>Consultant's fees for furniture work (M/s Nabar)</i>	<i>Rs. 1.25 lakhs</i>
<i>Total</i>	<i>Rs. 354.05 lakhs</i>
<hr/>	
B. <i>New Works:</i>	
<i>Additional work now proposed in the new and Old building (To be carried out)</i>	<i>Rs. 5.00 lakhs</i>
	<i>Rs. 359.05 lakhs</i>



## FINANCIAL STATUS

### A: Funds received from IITBHF for Girish Gaitonde Seminar Hall

Donor	Year	Date of receipt	Amount US \$	Amount Rs.
Girish Gaitonde	2001	5th Feb., 2001	300,000.00	1,38,91,170
Girish Gaitonde	2001	30 <sup>th</sup> Oct.,2001	300,000.00	1,43,49,035
Girish Gaitonde	2002	17 <sup>th</sup> Sept.,2002	250,000.00	1,20,22,445
Girish Gaitonde	2003	30 <sup>th</sup> Oct.,2003	250,000.00	1,12,60,000
Girish Gaitonde	2004	21 <sup>st</sup> Jan, 2004	1,54,049.18	70,27,724
		<b>TOTAL</b>	<b>12,54,049.18</b>	<b>5,85,50,374</b>

### B: Expenditure Statement

Particulars of expenditure	Expenditure up to 2004	Expenditure in 2005	Transfer of equipment to TCS A/c.	Total Expenditure Rs.
Equipment	1,07,62,473	5,04,172	(30,47,926)	82,18,719
Upgradation	19,19,822	3,72,500		22,92,322
Construction & Interiors	3,97,74,654	28,08,500		4,25,83,154
General expenses	2,48,807	1,35,494		3,84,301
G.G.Endowment	35,00,000			35,00,000
<b>Grand Total</b>	<b>5,62,05,756</b>	<b>38,20,666</b>	<b>(30,47,926)</b>	<b>5,69,78,496</b>

**Total funds received** Rs. 5,85,50,374

**Total expenditure incurred upto Dec 31, 2005** Rs. 5,69,78,496

**Balance:** Rs. 15,71,878 would be carried forward for the year 2006

**PROF. L. R. GADRE WIRELESS COMMUNICATION LAB**  
**(Funds donated by A. M. GADRE)**

It is with pride that the faculty members, staff, and students from the department of electrical engineering acknowledge the generous donation of \$275K given by Mr. A. M. Gadre to the I.I.T. Bombay Heritage fund. The aim of the donation was to set up a well-equipped, modern wireless complex in the department. The wireless complex has been set up and named after Prof. L. R. Gadre, an eminent educationist, as per the request of the donor. A modest inauguration ceremony of the Prof. L. R. Gadre Wireless Complex was held on August 6<sup>th</sup>, 2003 in the presence of Mr. A. M. Gadre and his family, along with enthusiastic participation from the students and faculty members associated with the complex.

A detailed expenditure statement on this project is being made available from the IITB accounts section. A broad break-up of costs on the equipment purchases and other items is given here.

**Major Purchases and Fund Utilization** (in Lakhs of Rupees):

- |  |        |
|--|--------|
| 1. Vector Network Analyzer (purchase completed)  | 26.0 L |
| <u>Agilent VNA 8722-ET</u> *: 50 MHz – 40 GHz, 104 dB dynamic range,<br>2 channel, transmission / reflection, frequency & power sweeps<br>40 – 45 % discount from the list price (Net price: US\$51934.16)   |        |
| 2. Signal Generator & Spectrum Analyzer (purchase completed)   | 18.0 L |
| <u>Agilent ESG-D E4433B</u> *: Digital & analog signal generator,<br>250 kHz – 4 GHz, AM, FM, PM, & I/Q modulation schemes<br><u>Agilent ESA E4404B</u> **: 100 kHz – 6.7 GHz Spectrum Analyzer<br>30 – 35 % discount from the list price (Net price: US\$36,296.40) |        |
| 3. DSP Laboratory Upgradation (on-going work)  | 10.0 L |
| Modern DSP kits compatible with PC based utilities   |        |
| 4. RF/Wireless circuit components (on-going work)  | 4.5 L  |
| Building modular set-up for RF up-links and down-links   |        |
| 5. Arbitrary Waveform Generator (purchase completed)   | 12.0 L |

Tektronix AWG 520: Two channel (I and Q), IF band up to 500 MHz  
1 GS/s, 16-bit, 2Ch. arbitrary digital waveform generator  
With PC based waveform creating utility for IF signals

- |  |        |
|--|--------|
| 6. Programmable PC Controlled Synthesizer (Qty.= 3, currently planned)   | 5.0 L  |
| 7. Maxim 2820 EV-Kit (Qty.= 4, currently planned)  | 1.0 L  |
| 8. Extreme DSP Kits for wireless experiments (Qty.= 4)<br>(currently planned)                                  | 4.0 L  |
| 9. Bluetooth, Wireless-LAN and Mobile equipment (planned)<br>Wireless demo room for GSM, GPRS, and W-CDMA etc. | 10.0 L |
| 10. Purchase of new PC's, printers, etc. (on-going)  | 6.0 L  |
| 11. Department Endowment Fund (completed)  | 10.0 L |
| 12. Civil Infrastructure & Facilities Development  | 5.0 L  |

Some modifications in terms of civil work and infrastructure are continuing in the wireless complex. Additional equipment purchases are being planned as and when any specific requirements get finalized. The entire project is now nearing completion. The Prof. L. R. Gadre Wireless Complex is now fully operational.

We thank the donor Mr. A. M. Gadre and IITBHF for providing the support for this project. The facilities developed through this project are being very beneficial for our research and educational activities.

The contact person for the wireless complex related activities is:

- Prof. G. P. Saraph, (In-charge, Communication Lab.)  
Project coordinator

**A: Funds received from IITBHF for L.R.Gadre Wireless Lab**

<b>Donor</b>	<b>Year</b>	<b>Date of receipt</b>	<b>Amount US \$</b>	<b>Amount Rs.</b>
Aniruddha Gadre	2002	March 8, 2002	100,000	48,66,000
Aniruddha Gadre	2002	September 17, 2002	175,000	84,15,711
		<b>TOTAL</b>	<b>275,000</b>	<b>1,32,81,711</b>

Expenditure for the year 2002	Rs. 21,10,006
Expenditure for the year 2003	Rs. 33,77,028
Expenditure for the year 2004	Rs. 20,50,733
Expenditure for the year 2004	Rs. 20,62,463

**Total expenditure** **Rs. 96,00,230**

**Balance amount Rs. 36,81,481 carried forward for the year 2006.**

**6. Concluding remarks:**

We thank the donor Mr. A. M. Gadre and IITBHF for providing the support for this project. The facilities developed through this project will be very beneficial for our research and educational activities.

## FACULTY DEVELOPMENT FUND (through IITBHF)

### 1. Introduction

The Institute has, over the last few years, appreciably increased the intake and also expanded the range of academic and research activities. Therefore, the contributions made by the alumni for the *Faculty Development Fund* has made a very significant impact. This fund essentially used by faculty members for international travel related to professional pursuits, dissemination of R & D results etc.

**For the year 2005** – the following faculty members were given travel assistance from the Faculty Development Fund.

Sr.No.	Name of the Faculty	Department	Details of visit	Amount sanctioned from FDF
01	Prof.Pulickel M.Ajayan	Visitor from University of Florida	Attended FAN-IITB Nanotechnology Conference held at IITB during January 6-8, 2005.	1,00,600
02	Prof.Brij Moudgil	Visitor from University of Florida	Attended FAN-IITB Nanotechnology Conference held at IITB during January 6-8, 2005.	1,00,600
03	Prof.N.K.Naik	Aerospace Engg.	Presented a paper at the 7 <sup>th</sup> International Conference on Sandwich Structures held at Aalborg, Denmark during August 29-31, 2005.	1,00,000
04	Prof. Deepankar Choudhary	Civil Engg.	Towards his travel expenses in connection with his visit to University of Wollongong, Australia as visiting faculty from May 10 <sup>th</sup> to June 12 <sup>th</sup> , 2005.	35,000
05	Prof. Tony J.Puthenpurakal	Mathematics	Invited to give a talk in the Nebraska Commutative Algebra Conference: WeigandFest during May 7-9, 2005 at Lincoln, Nebraska, USA	1,00,000
06	Prof. S.Uma Shankar	Physics	Participated in an International workshop in Particle Physics Phenomenology at Wisconsin and Argonne Theory Institute at Argonne National Laboratory, Illinois during May 2-13, 2005	50,000
07	Prof. Siddardha Ghosh	Civil Engg.	Presented a paper in the 9 <sup>th</sup> International Conference on Structural safety and Reliability held in Rome, Italy during 19-23, 2005.	30,000
08	Prof.Chetan Singh Solanky	Energy Systems Engg.	Presented a paper in the International Conference on Solar Concentrators for the Generation of Electricity or Hydrogen held	1,00,000

			at Scottsdale, Arizona, USA during May 1-6, 2005.	
09	Prof. Ashok Joshi	Aerospace Engg.	Presented papers at AIAA Conferences held at San Francisco, USA during August 15-18, 2005.	1,00,000
10	Prof. Ms. Ajit Sri Vidya	Reliability Engg.	Presented paper at the 8 <sup>th</sup> International Conference DQM – 2005 in Belgrade, Serbia during June 15-16, 2005 and attended Summer School during June 18-19, 2005	1,00,000
11	Prof. R.S.Jagid	Civil Engg.	Presented paper in the 9th World Seminar on Seismic Isolation, Energy Dissipation and Active Vibration Control of Structures held at Kobe, Japan during June 13-16, 2005	1,00,000
12	Prof.G.Venkatachalam	Civil Engg.	Presented a paper in the 9 <sup>th</sup> International Conference on Structural safety and Reliability held in Rome, Italy during 19-23, 2005.	1,00,000
13	Prof. U.A.Yagnik	Physics	Participated in an International Conference for Theoretical Physics, Trieste, Italy during May 23-28, 2005	40,000
14	Prof. M.N.Kulkarni	Civil Engg.	Presented a paper at The Asia-Pacific Space Geodynamics International Seminar/Workshop held at Hongkong during June 15-17, 2005.	30,000
15	Prof. M.K.Mishra	Chemistry	Invited as an expert in a workshop organized at Technion (Israel Institute of Technology) Haifa, Israel.	40,000
16	Prof. Ms.Rehana	Humanities & Social Sciences	Presented a paper at the Women's Worlds 2005 IX International Interdisciplinary Congress on Women held at Seoul, Korea during June 19-24, 2005	50,000
17	Prof. B.S.Pani	Civil Engg.	Presented papers in the 17 <sup>th</sup> Canadian Hydrotechnical Conference held at Edmonton, Canada during August 17-19, 2005.	1,00,000
18	Prof. P.Selvam	Chemistry	Invited lecture in the 11 <sup>th</sup> Asian Chemical Conference held by the Federation of the Asian Chemical Societies during August 24-26, 2005 at Seoul	20,000
19	Prof.B.Bandhopadhyay	Systems & Control Engg.	Participated in 2005 IEEE Conference on Control Application held at Toronto, Canada during August 28-31, 2005	17000
20	Prof.Tanmay Bhattacharya	Humanities & Social Sciences	Presented a paper at IX International Conference of Neurosciences held at Havana, Cuba during September 5-10, 2005	20,000
21	K.Subuddhi	Humanities & Social Sciences	Presented a paper in an International Conference on Unintended Consequences of Social Problems held at Philadelphia during August 12-14,2005	20,000
22	Prof. A.N.Chandorkar	Electrical Engg.	Presented papers in an International Conference on Embedded System called Global Signal Processing Conference held at Santa Clara, USA during October 24-27,	1,00,000

			2005	
23	Prof. S.D.Agashe	Electrical Engg.(Adjunct Prof.)	Presented paper in an International Conference “Albert Finctein’s Century” held at UNESCO headquarters, Paris during July 18-22, 2005	10,000
24	Prof.S.L.Dingra	Civil Engg. .(Adjunct Prof.)	Participated in the Global IIT 2005 Conference held at Bethesda, MD, USA during May 20-22, 2005	25,000
25	Prof. Nand Kishore	Chemistry	Participated in the Global IIT 2005 Conference held at Bethesda, MD, USA during May 20-22, 2005	20,300
26	Prof. A.K.Verma	Reliability Engg.	Presented a paper in the ICPS Conference	23,000
27	Prof.Amit Agrawal	Mechanical Engg.	Computational Fluid Dynamics AIAA& Microchannels and Minichannels ASME	22,000
				<b>15,53,500</b>

## 2. Financial report

### a) Funds received from alumni in US through IITBHF

Donor	Date of receipt	Amount US \$	Amount Rs.	Expenditure	Balance
Alumni in US	9th March 2005	62,000	26,94,520	15,53,500	29,66,198
<b>Balance B/F</b>			<b>18,25,178</b>		
<b>Total</b>			<b>45,19,698</b>	<b>15,53,500</b>	<b>29,66,198</b>

## 4. Concluding Remarks

The balance amount Rs. 29,66,198 has been carried forward for the year 2006. IIT Bombay deeply appreciates the efforts of IITBHF in raising funds for Faculty development fund.

**UPGRADATION OF TEACHING AND RESEARCH FACILITIES IN IDC  
FUNDS DONATED BY MR. SUHAS KAKDE**

**1. Introduction**

IIT Bombay Heritage Fund had transferred \$100,000 to IIT Bombay on October 10, 2001 towards Suhas Kakde's contribution to Industrial Design Centre (IDC). The amount realized was **Rs. 47,83,010**.

**2. Activity report**

**For the year 2005** we have spent Rs. 2,30,916/- towards furniture & improvement of students working area. Bamboo Lab and the construction is in full swing. Our commitment under various headings will be utilized once this bamboo lab construction work gets over.

Total funds received	Rs.47,83,010
Total Amount spent till December 2005	Rs.24,51,300
<b>Balance</b>	<b>Rs.23,31,710</b>

**3. Conclusion:**

**IIT Bombay takes this opportunity to thank Mr. Suhas Kakde for providing the funds (through IITBHF) to upgrade the teaching and research facilities in IDC. The facilities developed through this project would be beneficial for the research and educational activities.**



**FUNDS FOR SCHOOL OF BIOSCIENCES AND BIOENGINEERING  
DONATED BY RAHUL MEHTA (through IITBHF)**

**1) Introduction / Preamble**

Date of commencement of “Project”: 5<sup>th</sup> August 2002

The Mehta foundation donated \$ 50,000

Project in charge: The Head Bioschool

**2) Activities undertaken (Program / Achievements / Infrastructure development)**

**Major milestones:** Meetings were held on 18/08/02, 13/08/02, 19/08/02, 26/08/02, 28/08/02, 24/09/02 with the Architect Hafeez Contractor and the IIT Task Force. Tele-conference with Mr. Rahul Mehta was held on 24/09/02. The Design plans of the interior & exterior were submitted at the end of August 2002 and revised plans on 01/01/2003. Thereafter, discussions between the Director, IIT Bombay and the Donor took place, leading to a divergence of views. It was decided to keep the donation on hold. Later, the IIT Bombay Board renamed the School, as School of Bio-Sciences & Bio-Engineering.

**3) Usage of funds received:**

**3.1 Work done:** Design plans in two stages were completed and sent to the donor. Comments on the latest designs were incorporated.

**3.2 Expenditure Statements:** No payments have been made to the Architect, because no bill has been presented. Expenditure of **Rs. 10,000/-** has been incurred for courier & local travel to Architect’s offices. Majority of the funds should be with us as no other authorization for expenditure was given by us.

**5) Concluding remarks :** We hope this project can continue with renewed vigour as quickly as possible. New donors are welcome and must be invited.

## EXCELLENCE IN TEACHING AWARDS

### 3. Funds received

Particulars	Year	Date of receipt		Amount US \$	Amount Rs.
Alumni IITBHF	1997	September 9, 1997	One time	1,500	52,376
Alumni IITBHF	1999	October 18, 1999	One time	1,500	64,860
Alumni IITBHF	2001	March 28, 2001	Endowment	20,000	9,28,472
<b>TOTAL</b>				<b>23,000</b>	<b>10,45,708</b>

### 4. Investment details

Amount Invested Rs.	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned during the year 2005
9,28,472 (US\$ 20,000)	GOI Bonds 2003	4/2/04 to 4/2/2010	8%	74,228
		<b>Total</b>		74,228

### 5. Utilization of Funds

Academic year	Total Amount available Rs.	Amount paid	Balance
1997 - 1998	52,376	30,006	22,370
1998 - 1999	64,860	80,008	(15,148)
1999 - 2000	0	80,008	(80,008)
2000 - 2001	81,028	80,008	1,020
2001 - 2002	97,490	60,006	37,484
2002 - 2003	97,490	80,008	17,482
2003 - 2004	70,458	60,006	10,452
2004 - 2005	74,228	00	74,228
<b>TOTAL</b>	<b>5,37,930</b>	<b>4,70,050</b>	<b>67,880</b>

## LIBRARY ENDOWMENT FUND

IIT Bombay has received substantial contributions from alumni through *IIT Bombay Heritage Fund* towards 'Endowment for Library Journals'. The list of donations received and journals subscribed by using this endowment is appended.

### A: Funds received through IITBHF

Particulars	Year	Date of receipt	Amount US \$	Amount Rs.
Alumni IITBHF	1999	7th June, 1999	28,000	12,02,880
Alumni IITBHF	2000	26 <sup>th</sup> April, 2000	25,000	10,88,500
Alumni IITBHF	2001	5 <sup>th</sup> February, 2001	50,000	23,15,195
Alumni IITBHF	2004	28 <sup>th</sup> May, 2004	25,000	11,40,500
Parag Saxena	2001			1,42,00,000
Bala Sagrithaya	2002	17 <sup>th</sup> Sept., 2002	150,000	72,13,467
Bala Sagrithaya	2004	28 <sup>th</sup> May, 2004	100,000	45,62,000
Arvind Ghanekar	2003	23rd July, 2003	200,000	91,82,000
<b>TOTAL</b>			<b>578,000</b>	<b>4,09,04,542</b>

### B: Investment details

Amount Invested	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned in 2005
12,02,880	GOI Bonds	From 4/2/04 to 4/2/2010	8.00%	96,230
10,88,500	SBI Bonds	From 7/12/04 to 7/12/2010	8.00%	87,080
23,15,195	GOI Bonds	From 4/2/04 to 4/2/2010	8.00%	1,85,216
11,40,500	GOI Bonds	From 16/8/04 to 16/8/2010	8.00%	91,240
1,42,00,000	GOI Bonds	From 30/6/04 to 30/6/2010	8.00%	11,36,000
72,13,467	HDFC Bank	From 9/10/02 to 9/10/07	8.05%	5,77,077
45,62,000	GOI Bonds	From 16/8/04 to 16/8/2010	8.00%	3,64,960
		<b>Total</b>		<b>25,37,803</b>

### C) Utilization of funds

For the year 2005, the Institute library committee continues to subscribe journals. Given below is the list of journals along with the subscription amount.

	<b>Name of the Journal subscribed</b>	<b>Subscription amount Rs.</b>
1	Project MUSE 2005 Full Collection On-Line	1,84,323
2	Science Online Full text Access to Science (5000 FTE)	2,03,603
3	CA & CD (Chemical Abstracts Issues with Indexes) 12 monthly CD Issues	5,99,578
4	Maths & Statistics Collection & Business Collection (On Line)	1,21,473
	<b>Total</b>	<b>11,08,977</b>

Balance B/F from the year 2004 Rs. 23,35,194

Total interest earned on all the endowments during the year 2005 Rs. 25,37,803

**Grand Total** **Rs. 48,72,997**

Less Total amount spent on journal subscription in 2005 Rs. 11,08,977

**Balance** **Rs. 37,64,020**

### 3. Remarks

The role played by IITBHF through these endowments to enhance the research infrastructure has been very significant. IIT Bombay deeply appreciates the generous contributions received from Mr. Parag Saxena, Mr. Bala Shagrithaya , Mr.Arvind Ghanekar and Allumni in US.

## IIT BOMBAY HERITAGE FUND NAMED SCHOLARSHIPS

In the year 2005, IITBHF had transferred funds for 5 (**five**) new endowed scholarships for B.Tech./Dual Degree students of IITB and 1 (**one**) scholarship from Rajendra Agarwal raising the total number to **78 (seventy eight)** Endowed Scholarships. An additional amount USD 2,000 for 2 (**two**) existing scholarships from Kishor Kulkarni. The details are appended.

### 1. Funds received through IITBHF

Particulars	Date of receipt	Amount US \$	Amount Rs.
6 Named Scholarships	8 <sup>th</sup> June 1999	24,000	10,31,040
10 Named Scholarships	26 <sup>th</sup> April 2000	40,000	17,41,600
10 Named Scholarships	2 <sup>nd</sup> Dec 2000	46,700	21,76,834
9 Named Scholarships	2 <sup>nd</sup> Dec. 2000	36,300	16,92,057
8 Named Scholarships	5 <sup>th</sup> Feb 2001	32,000	14,81,725
1 Named Scholarship	8 <sup>th</sup> March 2002	4,000	1,94,640
1 Named Scholarship	17 <sup>th</sup> Sept. 2002	4,000	1,92,360
5 Named Scholarships	14 <sup>th</sup> Nov. 2002	20,000	9,57,976
9 Named Scholarships	13 <sup>th</sup> March 2003	36,000	17,02,134
5 Named Scholarships	23rd July 2003	20,000	9,18,200
6 Named Scholarships	1 <sup>st</sup> July 2004	28,000	12,77,360
Additional amount from Kishor Kulkarni	1 <sup>st</sup> July 2004	2,000	91,240
Additional amount from Deepak Kamath	1 <sup>st</sup> July 2004	4,000	1,82,480
2 Named Scholarships Abraham Thomas	21 <sup>st</sup> Jan. 2004	8,000	3,60,550
5 IITBHF Scholarships	9 <sup>th</sup> March 2005	25,000	10,86,500
Rajendra Agarwal	9 <sup>th</sup> March 2005	4,000	1,73,840
Additional amount from Kishor Kulkarni	9 <sup>th</sup> March 2005	2,000	86,920
<b>Total</b>		<b>3,36,000</b>	<b>1,53,47,456</b>

## 2. Investment details

Amount Invested Rs.	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned in 2005
10,31,040	GOI Bonds	4/2/04 for 6 years	8.00%	82,483
17,41,600	GOI Bonds	7/12/04 for 6 years	8.00%	1,39,328
21,76,834	GOI Bonds	4/2/04 for 6 years	8.00%	1,74,147
16,92,057	GOI Bonds	4/2/04 for 6 years	8.00%	1,35,365
14,81,725	GOI Bonds	4/2/04 for 6 years	8.00%	1,18,538
1,94,640	ICICI Bank	19/8/02 for 5 years	8.25%	16,058
1,92,360	HDFC Bank	9/10/02 for 5 years	8.05%	15,485
9,60,000	GOI Bonds	14/6/03 for 6 years	8.00%	76,638
17,02,134	GOI Bonds	14/6/03 for 6 years	8.00%	1,36,171
9,18,200	ICICI Bank	21/8/03 for 3 years	6.70%	61,519
12,77,360	GOI Bonds	16/8/04 for 6 years	8.00%	1,02,189
91,240	GOI Bonds	16/8/04 for 6 years	8.00%	7,299
1,82,480	GOI Bonds	16/8/04 for 6 years	8.00%	14,598
3,60,550	GOI Bonds	20/2/04 for 6 years	8.00%	28,844
10,86,500	GOI Bonds	25/5/2005 for 6 years	8.00%	52,152
1,73,840	GOI Bonds	25/5/2005 for 6 years	8.00%	8,344
86,920	GOI Bonds	25/5/2005 for 6 years	8.00%	4,172
<b>1,53,47,456</b>		<b>Total</b>		<b>11,73,330</b>

## 3. Scholarship details

The Institute Scholarship committee has awarded these scholarships to students from July 2005 to April 2006(Academic year 2005-2006). The scholarship amount per scholarship is Rs. 1000 per month (Rs. 10,000 for 2 semesters). The table below shows the details.

### I year B.Tech/Dual Degree

No.	Roll No.	Name	Name of the Scholarship	Sponsored By
1	05002037	Varun Bhalla	Ruyintan & Monica Mehta Family Foundation Scholarship	Ruyintan Mehta
2	05d02016	Ashish Deo Singh	- do -	- do -
3	05002016	Kamlesh Melana	Indira Manudhane Scholarship	Avi Nash Manudhane
4	05d07029	Sauvik Chowdhary	Prof. G.N. Revankar Scholarship	Deepak Sabnis
5	05d07008	Kunal Vyas	Dr.Chandrakant Thanawala Sholarship	Sukumar Thanawala
6	05010010	Tarun Gupta	Manohar & Sunita Kamat Scholarship	Deepak Kamat
7	05001008	Anup Maheshwari	- do -	- do -
8	05010044	Bhrugumalla Sai Sunil	R. N. Limaye Scholarship	Dilip Limaye
9	05011009	Jitendra Singh Mavaliala	C.Vimala&M.R.K. Menon Scholarship	Rajesh Radhakrishnan
10	05005018	Amdekar Chaitanya	Dr.G.V. Bakore Memorial Scholarship	Ravi Apte
11	05010040	Saurabh Harsh	Shri Raman K. Rao Scholarship	Raman Rao
12	05d10025	Ashwin D. Zade	Miss A. J. Majmundar	Raj Mashruwala

13	05d05019	Hari Krishna Bikmal	IITB alumni Microsoft Scholarship	IITBalumni@Microsoft
14	05010032	Abhishek Kushwaha	- do -	- do -
15	05d10024	Ram Dhuley	- do -	- do -
16	05007027	Ranjan Panda	Ashish Prasad Nandi Majumdar Schp.	Dev Purkayastha
17	05011029	Abhishek Srivastava	Kumar & Susan Shah Scholarship	Kumar & Susan Shah
18	05010031	Nitish Kumar	Subodh Ghonge Scholarship	Subodh Ghonge
19	05010027	Kate Aditya Pramod	Mr. G. M. Nabar Scholarship	Prafulla Nabar
20	05011033	Pratyush Raj	H. J. Talsania Scholarship	Abhay Talsania
21	05512022	Arti Bhattacharya	Abraham Thomas Scholarship	Abraham Thomas
22	05304001	Ghadge Sambhaji Shriran	Prabhakar D. Mahajan Scholarship	Milind Mahajan
23	05307013	Debasattam Pal	Shubha & Anand Talwalkar Scholarship	Niranjan Talwalkar
24	05307801	Dhanya Varghese	- do -	- do -

### II year B.Tech/Dual Degree

No.	Roll No.	Name	Name of the Scholarship	Sponsored By
25	04026014	V. Anuradha	IIT Bombay Heritage Fund Scholarship	IITB Heritage Fund
26	04002026	Prabhu Arun Laxman	- do -	- do -
27	04002029	Vishe Vishal	Jagjivan Ujamshi Talsania Schp.	Abhay Talsania
28	04d02019	Abhinav Arora	Vasant Himatlal Talsania Sch.	Abhay Talsania
29	04002051	S. Madhav	Indira Manudhane Scholarship	Avi Nash Manudhane
30	04011025	Pulkit Jain	Vidyadhar & Radhika Kulkarni Scholarship	Vidyadhar Kulkarni
31	04d07016	Suyog Gupta	Mr. Badruddin Sonawalla Scholarship	Noorali Sonawalla
32	04d07006	Saurabh Shintre	David J. Dunn Scholarship	Dev Purkayastha
33	04d10002	Pravar Joshi	Shri C.K. Apte Scholarship	Ravi Apte
34	04007006	Gaurav Sharma	Dr. Vijaya Apte Memorial Scholarship	Rave Apte
35	04007004	Abhijit Gupta	T.R.S. Anand & Bhanumati Anand Scholarship	Pradeep Anand
36	04001009	Rahul Goel	Mr. & Mrs. Ranaganathan Scholarship	Giridhar Iyengar
37	04007038	Akshay Bhatnagar	Jayant Sathe Scholarship	Jayant Sathe
38	04103014	Manish Kumar	Mr. Balkrishna K. Mundhe	Rajiv Mundhe
39	04011002	Samanth Agrawal	Sandra Lee Purkayastha Scholarship	Dev Purkayastha
40	04010037	Aman Pruthi	IIT <a href="mailto:Alumni@Microsoft">Alumni@Microsoft</a> Scholarship	IITB alumni@microsoft
41	04010027	Pushkaraj R. Sherkar	-do-	-do-
42	04D07005	Albert Minj	-do-	-do-

### III year B.Tech./Dual Degree

No.	Roll No.	Name	Name of the Scholarship	Sponsored By
43	03d11014	Jaisree Iyer	Burjor S. Dadyburjor Scholarship	Dady Dadyburjor
44	03007037	Deepak Merugu	Samir Shah – Prakash Peres Memorial	Class of 1985

			Scholarship	
45	03002039	Goda Jyoti	Mr. Shantilal H. Goradia Scholarship	Tarak Goradia
46	03026002	Changlani Hitesh	Abraham Thomas Schp.	Abraham Thomas
47	03d02014	M.S. Shamma	Mr. S.S. Shiralkar Scholarship	Bharat Shiralkar
48	03d04008	Ashna Chopra	Kanitkar Scholarship	Jayant Kanitkar
49	03011013	Ayush Chopra	Rajesh Radhakrishnan Scholarship	Rajesh Radhakrishna
50	03004002	Shreesh Mishra	Vidyadhar & Radhika Kulkarni Scholarship	Vidyadhar Kulkarni
51	03026004	Pavan Ramakrishna Hosur	Lata Vijaykar Scholarship	Sandeep Vijayakar
52	03d04004	Archit Parakh	Mrs. Minaz Sonawalla Scholarship	Noorali Sonawalla
53	03d05005	Sanchit Garg	Usha Purkayastha Scholarship	Dev Purkayastha
54	03d02001	Arpit Khandelwal	Nagesh C. Chaudhari Scholarship	Dev Purkayastha
55	03007018	Mohit Gupta	Mr. S.J. & Mrs. S.S. Kulkarni Scholarship	Abhay Kulkarni
56	03002040	Praveen Agarwal	Gajendra Chandra Malakar Scholarship	Dev Purkayastha
57	03011008	Hitesh Manwani	IIT Alumni @Microsoft Scholarship	IITBalumni@microsoft
58	03005021	Ankit Jain	IIT Bombay Heritage Fund Scholarship	IITB Heritage Fund
59	03007024	Shashank Shekhar Dwivedi	- do -	- do -

#### IV year B.Tech./Dual Degree

No.	Roll No.	Name	Name of the Scholarship	Sponsored By
60	02d07025	Neelesh Patodi	George Tharakan Scholarship	George Tharakan
61	02007005	Jagabathula Srikanth	Mrs. Ila Chandrakant Scholarship	Sunil Shah
62	02d10017	Himanshu Sharma	Dr. Kishor M. Kulkarni Scholarship	Kishor Kulkarni
63	02d01014	Paranjape Aditya Avinash	Prof. Mohan M. Kulkarni Scholarship	Kishor Kulkarni
64	02d07007	Piyush Nahar	Prof. K. Shankar Scholarship	Deepak Sabnis
65	02d04004	Ankit Garg	Abbas Bhatia/John A. Martin Jr. Scholarship	Hussain Bhatia
66	02004008	Sarvee Diwan	Prabhakar D. Mahajan Scholarship	Milind Mahajan
67	02004040	Nerukar Nikhil	-do-	Milind Mahajan
68	02004029	Aveek Nandi	Kanitkar Scholarship	Jyant Kanitkar
69	02d11018	Pankaj	Madho & Radha Agarwal Scholarship	Dwarika Agarwal
70	02007014	Shiram Shivaraman	Suresh & Varsha Nithalani Scholarship	Suresh Nihalani
71	02007004	Salim Shiraz Dewani	Suresh & Varsha Nithalani Scholarship	Suresh Nihalani
72	02d02001	Khushboo Maheshwari	Himangshushekar Purkayastha Scholarship	Dev Purkayastha
73	02d11016	Balvendra Pal	Mr. Kasamali Virani Scholarship	Noorali Sonawalla
74	02d07041	Jayakrishnan Unnikrishnan	Bijoya Chaudhari Scholarship	Dev Purkayastha
75	02002027	Kapil Daga	Lionel J D'luna Scholarship	Lionel D'luna
76	02002040	Abhinav Khare	Bibha Nandi Scholarship	Dev Purkayastha
77	02002041	Riju Raj Srivastava	Dwarka Nath Shuklo Baidya Scholarship	Dev Purkayastha
78	02002012	Abhinav Akhoury	IIT Bombay Heritage Fund Scholarship	IITB Heritage Fund
79	02d05004	Juvekar Sudeep Dilip	Mr. Roop Kumar & Mrs. Suraj Devi Agarwal Schp.	Rajendra Agarwal



#### 4. Utilization

The scholarships for the academic year from July 2005 to April 2006 awarded to 79 students.

#### Amount allotted for scholarships:

No. of Scholarships	Scholarship amount per month	Period	Total Scholarship
75	Rs.1000	10 Months(July.05 to April 2006)	7,50,000
4	Rs.1500	10 Months(July.05 to April 2006)	60,000
		<b>Total:</b>	<b>8,10,000</b>

Interest earned during the year 2005 = Rs.11,73,330

Add balance from 2004 = Rs.18,34,240

**Total amount available for the year 2005 = Rs 30,07,570**

Less expenditure for the year 2005 = Rs. 8,10,000

**Balance = Rs. 21,97,570**

**CLASS OF 1972 – “ENDOWMENT FOR HOSTEL MAINTENANCE”**

The Alumni from the "Class of '72" have set up an Endowment fund for Hostel maintenance- through Alumni donations.

**I - Financial Report**

**A. Funds received from alumni through IITBHF and alumni in India**

Particulars	Year	Date of receipt	Amount US \$	Amount Rs.
Alumni IITBHF	1998	22 <sup>nd</sup> Sept '98	22,000	9,30,380
Alumni IITBHF	1999	18 <sup>th</sup> October '99	7,800	3,37,272
Alumni India	1997 – 98		0	7,77,501
Alumni India	1998 – 99		0	83,701
<b>TOTAL</b>			<b>29,800</b>	<b>21,28,854</b>

**B. Investment details and Interest earned**

Amount Invested	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned in the year 2005
7,77,501	The South Indian Bank	31/12/02, 5years	7.50%	58,313
9,30,380	The South Indian Bank	31/12/02, 5years	7.50%	69,778
83,701	The South Indian Bank	31/12/02, 5years	7.50%	6,277
3,37,272	GOI Bonds	7/12/2004, 5years	8.00%	26,982
<b>21,28,854</b>			<b>TOTAL</b>	<b>1,61,350</b>

**II - Utilization report**

Total interest earned in the year 2005	Rs. 1,61,350
Add balance from 2004	Rs. 1,08,871
<b>Total</b>	<b>Rs. 2,70,221</b>

**Almost all the hostels were renovated recently. This amount will be C/F for the year 2006.**

**CLASS OF 87 - "ENDOWMENT FOR FACULTY DEVELOPMENT"**

**1. Introduction**

The Class of '87 had started a fund collection drive at the time of their tenth year re-union. The funds were targeted at Faculty development. Funds were raised in India and US; the statement below gives the current position of the endowment.

**a) Funds received from alumni in US through IITBHF and alumni in India**

Particulars	Year	Date of receipt	Amount US \$	Amount Rs.
Alumni in US	2000	26th April, 2000	26,115.28	11,37,059
Alumni in India	1997 - 98		<b>0</b>	2,37,101
<b>TOTAL</b>			<b>26,115.28</b>	<b>13,74,160</b>

**b) Investment details and Interest earned**

Amount Invested Rs.	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned in 2005
11,37,050	ICICI Bank	12/8/04 2 years 15days	6.00%	68,224
2,37,101	South IndianBank	31/12/02, 5years	7.50%	17,783
			<b>TOTAL</b>	<b>86,007</b>

Interest earned in the year 2005	= Rs. 86,007
Add balance from the year 2004	= Rs. 95,982

<b>Total amount available</b>	----- <b>= Rs. 1,81,989</b>
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This balance will be C/F for the year 2006.

## ENDOWMENT FOR MADHURI SINHA CHAIR – DONATED BY DR. SINHA

Dr. Krishna K. Sinha, Clinical Professor of Medicine, University of Colorado, Denver, has donated funds {through IIT Bombay Heritage Fund (IITBHF)} for creating **Madhuri Sinha Chair** in the School of Biosciences and Bioengineering at IIT Bombay.

**IIT Bombay has appointed Dr. Chaukar and Dr. Lokhandwala as adjunct professors on the Madhuri Sinha Chair from July 2001.**

The School of Bio-Sciences & Bio-Engineering, (formerly known as BJM School of Bio-Sciences & Bio-Engineering) has been considerably enriched by the association of the two professors jointly appointed as the “Madhuri Sinha Chair Professors”. Initially their appointment was for two years, extended for two more years and again extended for two more years.

### A: Funds received through IITBHF

Donor	Year	Date of receipt	Amount US \$	Amount Rs.
Dr. Krishna Sinha	2002	8th March, 2002	58,000	28,22,280
Dr. Krishna Sinha	2003	13th March, 2003	42,000	19,90,800
<b>TOTAL</b>			<b>100,000</b>	<b>48,13,080</b>

### B: Investment details and Interest earned on investments

Amount Invested	Financial Institution/Bank	Date & Period of investment	Rate of Interest	Interest earned in 2004
28,22,280	GOI Bonds	20/3/04 for 6 years	8.00%	2,25,782
19,90,800	GOI Bonds	14/6/03 for 6 years	8.00%	1,59,264
			<b>Total</b>	<b>3,85,046</b>

**C: Expenditure:**

<b>Name of the Chair Professor</b>	<b>Date &amp; Period of appointment</b>	<b>Consolidated salary per month (Rs.)</b>	<b>Total salary for the year 2005 (Rs.)</b>
Prof. A.P.Choukar	July 2001– July 2007	23,000	2,76,000
Prof. Y.Y.Lokhandwala	July 2001– July 2007	18,000	2,16,000
		<b>Total</b>	<b>4,92,000</b>

**Total Interest for the year 2005** **Rs. 3,85,046**

Expenditure for the year 2005 Rs. 4,92,000  
Add previous years negative balance Rs.8,33,661 Rs. 13,25,661

**Balance** **Rs. (9,40,615)**

## KANWAL REKHI SCHOOL OF INFORMATION TECHNOLOGY

**Ms Raj Kaur Rekhi M Tech Endowment for KReSIT :** Two students, out of total admitted 26 , in July 2002 were the first to avail this support. A stipend of Rs 5000 per month & Tuition Fees Rs 21,050 per semester per student was supported from this Endowment. This batch has successfully completed the course in July 2004. In July 2003, eight(8) M Tech.students, out of total admitted 30, were supported from this endowment.

**MJR Bhagat Singh Rekhi PHD Endowment for KReSIT:** Mr Ashish Tendulkar, Mr Sameer Sahasrabuddhe & Mr Nitin Salodkar were supported with a fellowship of Rs 10000 per month with Tuition Fee waiver with effect from January 2003. However, in January 2004, Infosys Technologies LTD selected Mr Ashish for a fellowship & also Mr Nitin in October 2004 . Thus they are transferred from MJR Bhagat Singh Rekhi PHD Endowment to Infosys Fellowship. Mr Sameer continues to get MJR Bhagat Singh Rekhi Fellowship.

**MJR Bhagat Singh Rekhi Chair Endowment :** The chair is yet to be appointed. Based on discussion with Mr Kanwal Rekhi, we plan to utilize the funds -until the chair is filled- to host distinguished visitors to the school.

### Financial Statement:

#### A. Donation received from Kanwal Rekhi through IITBHF

Particulars	Date of receipt	Amount US \$	Amount Rs.
Mjr.Bhagat Singh Chair	2 <sup>nd</sup> December 2000	130,468	60,81,538
Mjr.Bhagat Singh Ph.D Fellowship	2 <sup>nd</sup> December 2000	214,532	1,00,00,000
Raj Kaur Rekhi M.Tech.Scholarships	2 <sup>nd</sup> December 2000	100,000	46,61,315
<b>Total</b>		<b>445,000</b>	<b>2,07,42,853</b>

## B. Investment Details

<b>Amount invested</b>	<b>Financial Institution/Bank</b>	<b>Date &amp; period of Investment</b>	<b>Rate of Interest</b>	<b>Interest earned in 2005</b>
60,81,538	GOI Bonds	4/2/04 to 4/2/2010	8.00%	4,86,523
1,00,00,000	GOI Bonds	4/2/04 to 4/2/2010	8.00%	8,00,000
46,61,315	GOI Bonds	4/2/04 to 4/2/2010	8.00%	3,72,905
<b>2,07,42,853</b>		<b>Total</b>		<b>16,59,428</b>

## C. Utilization of Funds:

<b>Particulars</b>	<b>Balance of interest b/f Rs.</b>	<b>Interest earned in 2005 Rs.</b>	<b>Total amount available Rs.</b>	<b>Amount paid in 2005 Rs.</b>	<b>Balance Amount Rs.</b>
Mjr.Bhagat Singh Chair	25,65,499	4,86,523	30,52,022	0.00	<b>30,52,022</b>
Mjr.Bhagat Singh Ph.D Fellowship	36,35,273	8,00,000	44,35,273	84,800	<b>43,50,473</b>
Raj Kaur Rekhi M.Tech.Scholarships	5,60,535	3,72,905	9,33,440	6,55,199	<b>2,78,241</b>
<b>Toal</b>	<b>67,61,307</b>	<b>16,59,428</b>	<b>84,20,735</b>	<b>7,39,999</b>	<b>76,80,736</b>

## SHAILESH J MEHTA SCHOOL OF MANAGEMENT

### Report on the Shailesh J Mehta Endowments for the year 2004

A total amount of US \$ 1,476,224 (Rs. 6,89,99,968, or approximately Rs. 69 million) was received from Dr Shailesh Mehta towards creating endowments at IIT-Bombay. An amount of approximately Rs. 25 million has already been spent as part contribution towards the creation of a modern residential facility for continuing education. The remaining amount of Rs. 44 million was used to create six different endowments for different purposes. The following table describes the six endowments created, and the allocation of corpus to each.

**Table 1: Endowments and allocation of corpus**

Description of endowment fund	Corpus allocation (Rs.)
Best teacher award in management	1,00,000.00
Scholarships (PhD and Master of Management)	1,32,00,000.00
Promotional activities including distinguished lectures	20,00,000.00
Development: School development and faculty development, including faculty exchange	1,87,00,000.00
Shailesh Mehta Chair	70,00,000.00
Student activities	30,00,000.00
<b>Total</b>	<b>4,40,00,000.00</b>

Every year, interest income from the corpus associated with the different funds is used to support activities associated with each. While we do intend to utilize the interest income fully, in practice, the actual expenditure may follow a different sequence. For example, while the income and expenditure is reported for the calendar year 2005, many expenses are likely to be incurred before the closing of the Institute financial year-end, which is March 2005. The following table provides information regarding the expenditure incurred for the calendar year 2005. It should be noted that in practice, income and expenditure statements are normally generated for the financial year in India, which is from April through March. Therefore, we have adjusted the reported amounts where required to match the calendar year.



**Table 2: Expenditure for the different activity elements**

<b>Description of Endowment Fund</b>	<b>Expenditure in Rs.</b>
Best teacher award in management	10,001.00
Scholarships (PhD and Master of Management)	11,20,081.00
Promotional activities including distinguished lectures	0.00
Development: School development and faculty development, including faculty exchange	6,12,149.00
Shailesh Mehta Chair	0.00
Student activities	16,653.00
<b>Total</b>	<b>17,58,884.00</b>

As will be noted from Table 2, there is some unspent balance. However, some of this is expenditure that is not yet incurred, but is committed for the current financial year (through March 2006):

- Support to faculty to attend conferences of the Midwest Financial Association and the Global Finance Association: approximately Rs. 2,00,000
- School facility enhancement, including extending a wireless network throughout the School, and facilities upgradation: approximately Rs. 6,00,000.00
- Enhanced support for PhD students, including research and travel grants: Rs. 2,50,000.00

Filling the Shailesh Mehta Chair remains a priority for the School, as this is the one component of the various endowments that is, at the moment, not being utilized. In this regard, we have had some discussions with the FAN network for possible filling the Chair on a rotating basis, if an individual cannot be found on a full-time basis.

## **ENDOWMENT FOR CHAIRS AND FELLOWSHIPS IN THE DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **I. Introduction**

**Dr. Vincent Fernandes**, Alumni 1975, donation of \$ 244,058 in October 30 2001 for a Chair Assistant Professor and two fellowships for Dual Degree students.

**Dr Vijay Vashee**, Alumni 1985, donated \$300k in March 8, 2002 for a Chair Professor and two fellowships. He has further given \$50,000 in September for Excellence in Research awards and \$ 59973 in Sep.17 2002 for Thomas Dooie fellowship for a Dual Degree student.

### **II. Activities Undertaken**

#### **1. Vijay and Sita Vashee Chair Professor:**

Prof. Krithivasan Ramamritham has been appointed the **Vijay and Sita Vashee Chair Professor from July 2003.**

**2. The James R Isaac Assistant Professor Chair** position in the department was awarded to Dr. Supratik Chakraborty. Dr. Chakraborty did his B.Tech in Computer Sci Engg from IIT Kharagpur in 1993 for a period of three years.

### **3. Fellowships**

#### **A. Dual Degree Fellowships:**

Two fellowships for the dual degree students have been instituted from the funds donated by Dr. Vincent Fernandes as detailed below.

- (i) Dr George B Fernandes Fellowship for DD student, if any registered for a project with James R Isaac Chair Asst Prof, or to any eligible student in CSE department awarded to **Abhisekh Sankaran Roll No.01D05009.**
- (ii) Dr. Winifred A Fernandes Fellowship for an eligible female DD student in CSE department, if one exists or any eligible student in CSE department awarded to **Sachin Patil, Roll No.01D05008.**

#### **B. Fellowships from Vijay Vashee's Endowment :**

A part of the endowment has been used to support THREE fellowships for the post graduate students of CSE department.

- (i) Ajay Vashee Fellowship for PG Student, if any registered for a project with the Vijay & Sita Vashee Chair Prof. or to any eligible student in CSE dept. awarded to **Mehul Wagle, Roll No. 03305004.**
- (ii) Nilesh Vashee Fellowship for PG student working in the CSE dept. awarded to **Kriti Puniyani, Roll N.04305012.**
- (iii) Thomas Dooie, class of 1974 Fellowship, for a DD student in CSE dept. awarded to **Ashwin Limaye, Roll No.01D05012.**

### 3. Research Excellence Awards

A part of the endowment from Dr. Vijay Vashee is being used to set up annual excellence awards for outstanding research performed in the area of Computer Science and Engineering.

#### C. FINANCIAL STATEMENT

##### I. Vijay Vashee Donation

##### Donation received through IITBHF

Donor	Date of receipt	Amount US \$	Amount Rs.
Vijay Vashee	8 <sup>th</sup> March, 2002	300,000	1,45,98,000
Vijay Vashee	17 <sup>th</sup> Sept., 2002	59,973	28,84,088
<b>Total</b>		<b>3,59,973</b>	<b>1,74,82,088</b>

##### Details of the Donation received

Donor	Purpose	Amount (in Rs.)
Vijay Vashee	Endowment for Vijay and Sita Vashee Chair	85,15,500
Vijay Vashee	Endowment for two Ajay Vashee fellowships	46,22,700
Vijay Vashee	Endowment for Thomas Dooie fellowship for Dual Degree student	14,59,800 4,79,599
Vijay Vashee	Endowment for Vijay Vashee Excellence awards	24,04,489

### Investment Details

Amount Invested (in Rs.)	Financial Institution / Bank	Date & Period of Investment	Rate of interest	Interest earned up to 31/12/2004	Interest earned in 2005	Total interest earned up to Dec., 2005
85,15,500	GOI Bonds	20/3/2004 for 6 years	8.00%	9,99,040	6,81,240	<b>16,80,280</b>
46,22,700	GOI Bonds	20/3/2004 for 6 years	8.00%	10,17,256	3,69,816	<b>13,87,072</b>
14,59,800 4,79,599	ICICI Bank HDFC Bank	19/8/02 for 7 years 9/10/2002 for 5 years	8.25% 8.05%	4,32,814	1,20,434 <u>38,608</u> <b><u>1,59,042</u></b>	<b>5,91,856</b>
24,04,489	GOI Bonds	9/10/2002 for 5 years	8.05%	4,31,580	1,93,561	<b>6,25,141</b>
<b>1,74,82,088</b>	<b>Total</b>			<b>14,03,659</b>	<b>28,80,690</b>	<b>42,84,349</b>

### Expenditure Statements Vijay Vashee Donation

Endowment	Name of the recipient	Amount	Period	Expenditure upto Dec 2005 (in Rs.)
Vijay and Sita Vashee Chair-professor	Prof. Krithivasan Ramamritham			7,65,343
Ajay Vashee Fellowship	Mehul Wagle, Roll No.03305004	Rs.1,000 Per month	January 2005 to May 2005	5,000
Nilesh Vashee Fellowship	Kriti Puniyani, Roll N.04305012	Rs.1,000 Per month	January 2005 to June 2006	18,000
Thomas Doobie class of 1974 Fellowship	Ashwin Limaye, Roll No.01D05012	Rs.1,000 Per month	January 2005 to June 2006	18,000
			<b>Total</b>	<b>8,06,343</b>

### Balance of Interest

Endowment	Total interest earned up to Dec., 2005	Expenditure upto Dec 2005 (in Rs.)	Balance
Vijay and Sita Vashee Chair-professor	<b>16,80,280</b>	7,65,343	9,14,937
Ajay Vashee Fellowship &	<b>13,87,072</b>	23,000	13,64,072

Nilesh Vashee Fellowship			
Thomas Dooie class of 1974 Fellowship	<b>5,91,856</b>	18,000	5,73,855
Vijay Vashee Excellence awards	<b>6,25,141</b>	000	6,25,141
<b>Total</b>	<b>42,84,349</b>	<b>8,06,343</b>	<b>34,78,006</b>

## II. Vincent Fernandez

### Donation received from through IITBHF

Donor	Purpose	Date of receipt	Amount US \$	Amount (in Rs.)
Vincent Fernandez	Endowment for Prof. J. R. Isaac Chair Asst. Prof. and 2 fellowships	30 <sup>th</sup> October, 2001	244,058.60	1,16,73,348

### Investment Details

Amount Invested (in Rs.)	Financial Institution/ Bank	Date & Period of Investment	Rate of interest	Interest earned up to 31/12/2004	Interest earned in 2005	Total interest earned up to Dec., 2005
1,16,73,348	GOI Bonds	30/6/04 for 6 years	8.00%	27,45,965	9,33,868	<b>36,79,833</b>
<b>1,16,73,348</b>	<b>Total</b>			<b>27,45,965</b>	<b>9,33,868</b>	<b>36,79,833</b>

### Expenditure Details of Prof. J. R Isaac Chair and Fellowships

	Name of the Chairprofessor	Amount	Period	Expenditure upto Dec 2004 (in Rs.)
Prof. J. R Isaac Chairprofessor	Prof. Supratik Chakraborty			000
Dr. George B. Fernandes Fellowship	Abhisekh Sankaran Roll No.01D05009	Rs.1,000 Per month	January 2005 to June 2006	18,000
Dr. Winifred A. Fernandes Fellowship	Sachin Patil, Roll No.01D05008	Rs.1,000 Per month	January 2005 to June 2006	18,000
			<b>Total</b>	<b>36,000</b>

**Balance of Interest**

<b>Endowment</b>	<b>Total interest earned up to Dec., 2004</b>	<b>Expenditure upto Dec 2004</b>	<b>Balance</b>
Prof. J. R Isaac Chairprofessor & Two Fellowships	<b>36,79,833</b>	<b>36,000</b>	<b>36,43,833</b>

**PARAG SAXENA – ENDOWMENT FOR P.C. SAXENA AUDITORIUM  
MAINTENANCE**

**1. Introduction**

Mr. Parag Saxena (B.Tech, 1977, CHE), had contributed funds (through IITBHF) for maintenance and upgradation of “P.C. Saxena auditorium”. In recognition to his munificent contribution - the Institute has named (the erstwhile) Lecture Theatre as “P.C. Saxena auditorium”. Rs.40,00,000 transferred to Endowment fund for Lecture Theatre maintenance.

Details of Interest on Endowment fund :

<b>Financial Institution/Bank</b>	<b>Amount Invested</b>	<b>Date &amp; Period of Investment</b>	<b>Rate of Interest</b>	<b>Interest earned in 2005</b>
GOI Bonds	40,00,000	30/6/04 for 6 years	8.00%	<b>3,20,000</b>

<b>Interest earned during the year 2005</b>	<b>Rs. 3,20,000</b>
<b>Add previous years balance</b>	<b>Rs. 7,85,955</b>
<b>Total funds available for the year 2006</b>	<b>Rs.11,05,955</b>

## PROF. S. P. SUKHATME ENDOWMENT FUND

### 1. Introduction

During the alumni day in December 1999, few alumni got together and decided to institute an endowment fund in the name of 'Prof. S. P. Sukhatme', who has immensely contributed for the growth of the institute, in his capacity as professor of Mechanical engineering department and as the Director of the institute.

Prof. S. P. Sukhatme is an eminent teacher, researcher and administrator. He has received many prestigious awards like Padma Sri (national award), S. S. Bhatnagar award (national), and Lifetime achievement award from IIT Bombay. He was the Director of IIT Bombay from 1995 to 2000. Currently, he is the Chairman of Atomic Energy Regulatory Board, Mumbai.

### 2. Details of Funds Received

Donor	Amount USD	Amount Rs.
Kanwal Rekhi	55,000	25,63,724
Alumni in India	0.00	6,43,500
<b>Total</b>	<b>55,000</b>	<b>31,98,224</b>

### 3. Interest Earned(2003)

Amount invested	Financial Institution/Bank	Interest Earned (uptoDec.2004)	Interest Earned In 2005	Total interest up to 31/12/2005
25,63,724	GOI Bonds @ 8.00%	10,86,351	2,05,098	12,91,449
6,43,500	GOI Bonds @ 8.00%	2,49,491	51,480	3,00,971
<b>31,98,224</b>	<b>Total</b>	<b>13,35,842</b>	<b>2,56,578</b>	<b>15,92,420</b>

### 4. Proposed utilization of funds

IIT Bombay is now in the fifth decade of functioning and it would be celebrating its golden jubilee in the year 2008. Therefore, it is felt that the records of history and important events of



the institute should be documented in a systematic and proper fashion and preserved digitally. The history of the institute needs to be documented in a structured manner. The matter is being discussed and some preliminary concepts are being crystallized. Prof. S. P. Sukhatme has expressed his desire to utilize this endowment for the archival purpose of IIT Bombay

#### **5. Concluding remarks**

It was indeed a very thought gesture on part of alumni to set up an endowment fund in the name of Prof. S. P. Sukhatme, former Director of the institute.

## Rakesh Mathur- Endowment for Academic Excellence Awards

IIT Bombay Heritage Fund had transferred **US\$ 161,000** in July 2003 to set up endowments for three Annual Excellence Awards. The amount realized was **Rs.73,91,510/-** and invested in a Fixed Deposit.

Endowment for Prof.S.C.Bhattacharyya Award	<b>\$60,000</b>	<b>Rs.27,54,600</b>
Endowment for .Prof.H.H.Mathur Award	<b>\$60,000</b>	<b>Rs.27,54,600</b>
Endowment for Rakesh Mathur Excellence Award	<b>\$41,000</b>	<b>Rs.18,82,310</b>

The following Search-cum-Selection Committee was appointed by the Director, IIT Bombay to evaluate the nominations received for the above two awards.

- |  |            |
|--|------------|
| 1. Prof. Ashok Misra, Director IIT Bombay                      | : Chairman |
| 2. Prof. M.N. Munjal,<br>Dept. of Mech.Engg., IISc., Bangalore | : Member   |
| 3. Prof. M.M. Sharma,<br>Member, BOG, IIT Bombay               | : Member   |
| 4. Dr. V.C. Sahni, Director, CAT, Indore                       | : Member   |
| 5. Prof. R.K.Shevgaonkar, Dean (RM)                            | : Member   |
| 6. Prof. Kartic C. Khilar, Dean (R&D)                          | : Member   |
| 7. Prof. D.V.Khakhar, Dean (F)                                 | : Member   |
| 8. Prof. K.Sudhakar,   | : Member   |

The Search-cum-Selection Committee met on February 27, 2006 and recommended **Prof. V.D.Sharma**, Dept. of Mathematics for **Prof. S.C.Bhattacharyya Award for Pure Sciences** and **Prof. J.M.Vasi**, Dept. of Electrical Engineering for **Prof. H.H.Mathur Award for Excellence in Applied Sciences**.

Rakesh Mathur Excellence Award was awarded to **Mr.Jagabathula Srikanth** his Roll No.02007005.

### Financial Status:

Financial Institution/Bank	Amount Invested	Period of Investment	Rate of Interest	Interest Earned in 2005
ICICI Bank	73,91,510	10 years	6.70%	4,95,231

Interest earned during the year 2005 Rs. 4,95,231

Add balance b/f Rs. 7,00,080

<b>Total</b>	<b>Rs. 11,95,311</b>
Less expenditure incurred in 2005	Rs. 4,47,741
<b>Balance C/F for the year 2006</b>	<b>Rs. 7,47,570</b>

## **Nitesh Thakor - Excellence Award for School of Bio-Sciences & Bio - Engineering**

IIT Bombay Heritage Fund had transferred US\$ 2000 in July 2003, \$3000 transferred in January 2004 and \$ 2,000 in March 2005 towards Endowment for Nitish Thakor Excellence Award in School of Bio-Sciences and Bio-Engineering.

The amount **US \$ 2000** realised was **Rs.91,820** , **US \$ 3000** realized was **Rs.1,35,200** and **US\$ 2000** realised was **Rs. 86,920**. Total comes to **US\$ 7,000** and **Rs.3,13,940** and invested in a Fixed Deposit.

The award was given to Mr. B. Sivakumar Roll No. 0330012. On 6<sup>th</sup> January 2005, Prof. Nitish Thakor handed over the certificate to Mr. B. Sivakumar. It is recommended that the award amount will be utilized as research grant for the student.

### **Financial Status:**

<b>Financial Institution/Bank</b>	<b>Amount Invested</b>	<b>Period of Investment</b>	<b>Rate of Interest</b>	<b>Interest Earned upto Dec.2004</b>	<b>Interest Earned in 2005</b>	<b>Total interest</b>
<b>ICICI Bank</b>	<b>91,820</b>	<b>10 years</b>	<b>6.70%</b>	<b>8,700</b>	<b>6,152</b>	<b>14,852</b>
<b>GOI Bonds</b>	<b>1,35,200</b>	<b>6 years</b>	<b>8.00%</b>	<b>9,340</b>	<b>10,816</b>	<b>20,156</b>
<b>GOI Bonds</b>	<b>86,920</b>	<b>6 years</b>	<b>8.00%</b>		<b>4,172</b>	<b>4,172</b>
<b>Total</b>				<b>18,040</b>	<b>21,140</b>	<b>39,180</b>

## Ryan Limaye - Endowment for Academic Excellence Awards

IIT Bombay Heritage Fund had transferred US\$ 15,000 in July 2003 and US\$ 5,940.61 in March 2005 for Dilip R.Limaye Excellence Award.

The amount (\$15,000) realized was Rs.6,88,650 out of this Rs. 50,000 utilised for giving the Award for the year 2002-03. Balance amount Rs.6,38,650 invested in a Fixed Deposit. The amount (\$5,940.61) realized was Rs.2,58,186 invested in a Fixed Deposit.

Shri Dilip R.Limaye Academic Excellence Award for the year 2004-05 awarded to Mr.Vaze Vikrant Suhas B.Tech. Civil Engineering, who won the President of India Gold Medal.

### Financial Status:

#### Funds received through IIT Bombay Heritage Fund

Amount in US\$	Amount in Rs.	Amount invested	Period of investment	Rate of interest	Interest earned in 2005
15,000.00	6,88,650	6,38,650	10 years	6.70%	42,790
5,940.61	2,58,186	2,58,186	25/5/05 for 6 years	8.00%	20,655
<b>20,940.61</b>	<b>9,46,836</b>	<b>8,96,836</b>			<b>63,444</b>

Interest earned in 2005	Rs. 63,444
Add Balance from 2004	Rs. 3,280
<b>Total</b>	<b>Rs. 66,724</b>
Less amount paid during the year	Rs. 50,000
<b>Balance C/F for the year 2006</b>	<b>Rs. 16,724</b>

## CONTRIBUTIONS RECEIVED DURING THE YEAR 2005

### **Raj Mashruwala:**

IIT Bombay Heritage Fund had transferred **US\$ 400,000** in March 2005, towards Suman Mashruwala Lab. The amount realized was **Rs. 1,73,84,000/-** **the utilization report is on page No. 4**

### **Avinash Manudhane (Indira Foundation)**

IIT Bombay Heritage Fund had transferred **US\$ 125,000** in March 2005, and **US\$ 125,000** in November 2005 towards Chemical Engg. Department Project. The amount realized was **Rs.54,00,000 and Rs. 57,05,287**, **the utilization report is on page No. 16**

### **Prashant Ranade**

IIT Bombay Heritage Fund had transferred **US\$ 100,000** in March 2005 for Perlita Ranade Tennis Courts. The amount realized was **Rs.43,46,000/-**

### **Alumni in US (IITBHF Faculty Development Fund)**

IIT Bombay Heritage Fund had transferred **US\$ 62,000** in March 2005, towards Faculty Development Fund. The amount realized was **Rs.26,94,520**, **the utilization report is on page No. 29**

### **Atul Thakkar**

IIT Bombay Heritage Fund had transferred **US\$ 30,000** in March 2005, and **US\$ 11,099.61** in November 2005 for developing a solar powered auto rickshaw. The amount realized was **Rs. 13,03,800/-** and **Rs. 5,06,612/-**. The amount was transferred to Project & Consultation Account. The Project lead is Prof.Siddhartha Datta Gupta.

### **Dilip R.Limaye**

IIT Bombay Heritage Fund had transferred **US\$ 5940.78** in March 2005, towards additional endowment for Academic excellence award. The amount realized was **Rs.2,58,186/-** and was **invested in fixed deposit.**

### **Nitish Thakor**

IIT Bombay Heritage Fund had transferred **US\$ 2,000** towards Endowment for Nitish Thakor Excellence Award in School of Bio-Sciences and Bio-Engineering. The amount realized was **Rs.86,920/- and invested in GOI Bonds for 6 years @8%. the utilization report is on page No.60**

### **Suhas Pai**

IIT Bombay Heritage Fund had transferred **US\$ 5,000 in** March 2005, for offering courses in SystemC. The amount realized was **Rs.2,17,300/-**

### **Alumni in US(Class of '77)**

IIT Bombay Heritage Fund had transferred **US\$ 43,500** in March 2005, for Faculty Housing. The amount realized was **Rs. 18,90,510/-** This amount will be transferred to the respective head of account as and when the funds required.

### **Alumni in US**

IIT Bombay Heritage Fund had transferred **US\$** in March 2005, for Various Departments and Hostels. The amount realized was **Rs./-** This amount will be transferred to the respective Departments and Hostels as and when the funds required.

### **Alumni in US (Hostel Renovation Fund)**

IIT Bombay Heritage Fund had transferred **US\$ 6,620** in March 2005, towards Hostel renovation. The amount realized was **Rs.2,87,705/-**

### **IITBHF Named Scholarships**

IIT Bombay Heritage Fund had transferred **US\$ 28,000** in March 2005, towards Endowment for Five Scholarships. The amount realized was **Rs.10,86,500/-** and invested for long term @8%. **Fund utilization report is on page No.37**

### **Rajendra Agarwal**

IIT Bombay Heritage Fund had transferred **US\$ 4,000** in March 2005, for one scholarship in the name of Roop Kumar Agarwal & Surajdevi Agarwal. The amount realized was **Rs.1,73,840/-** and invested for long term @8%. **Fund utilization report is on page No. 37**

### **Kishor Kulkarni**

IIT Bombay Heritage Fund had transferred **US\$ 2,000** in March 2005, an additional amount for existing 2 scholarships. The amount realized was **Rs. 86,920/-** and invested for long term @8%. **Fund utilization report is on page No. 37**

### **Alumni in US**

IIT Bombay Heritage Fund had transferred **US\$ 12,226** in March 2005, for Chemical Engineering Department towards water coolers and furniture. The amount realized was **Rs. 5,58,000**. This amount will be transferred to the respective head of account as and when the funds required.

### **Concluding remarks**

Interest on several endowments is inadequate to meet the originally stated purpose. The endowments on scholarships do not yield adequately to keep the scholarships at reasonable level. It has now become imperative for the key functionaries of IIT Bombay as well as the Directors of IIT Bombay Heritage Fund to look at some of the existing endowments and examine how best we can either ensure continuity of activity or integrate the activities between several endowments.

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