

I. D. C. Library
L. I. T. Bombay.

This issue is dedicated to the memory of Hochschule für Gestaltung, Ulm (Design School, Ulm,) which for the first time in the history of Industrial Design, came out with a philosophy that gave a new hope to the society in humanising the wild developments in technology.

A new enterprise is valued, ultimately, in terms of sustained dynamism rather than initial enthusiasm; it may begin on a note of optimism but its real quality is ascertained only when it can progressively respond to challenges.

All schools of thought have a social and cultural responsibility; a new school of thought succeeds only to the extent that it can influence society both vertically and horizontally. Its vertical influence is on the intellectual elite and its horizontal influence is on the content and quality of civilized life of the society as a whole. Therefore, one of the primary tasks of any new school of thought is to communicate the significance of its own activity to various sectors of society. In particular, a new school of thought has to create a dialogue among the practitioners of the same discipline but it must also create an interdisciplinary dialogue since its ultimate value to human activity lies in its ability to develop in many dimensions, thus extending its significance beyond its own specialised arena.

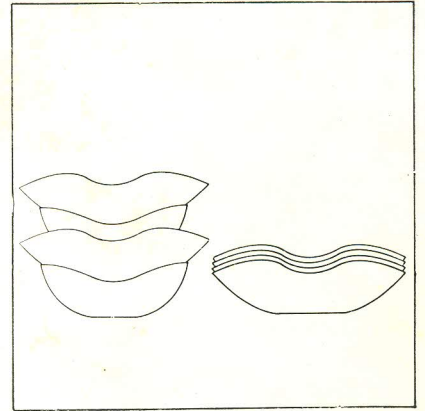
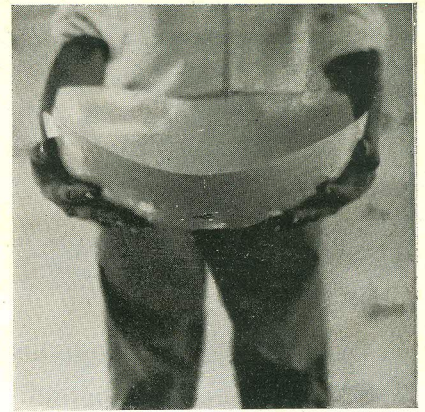
This is the first issue of a document the Centre intends to bring out once a year. The main objective of this document is to record and communicate the work done at the Centre. It will touch upon all aspects of design both conceptual and practical. Industrial design is a vital issue in an industrializing mass-society. Its implications and repercussions are wider than most people at present imagine. The minds which shape industrial design are important to society because industrial designs, when transformed into mass-produced industrial products, shape the habits and the texture of social life. The creative industrial designer responds to design-problems inherent to man's conception of every man-made object. He has to consider human needs in depth, he has to consider the user's life-activity in great detail, and he has to relate his design concept to his society's cultural goals. In India today, we are caught in the process of a gigantic transition. Within a packed century, we were introduced first to early Industrial life. And even before industrialization has pene-

trated India thoroughly, the world has already seen the second Industrial Revolution or the Technological Revolution. We have to seek the link between the Indian tradition and technological modernity. Where such a link does not exist, we have to do pioneering work. If we fail to communicate the significance of what we are doing at this Centre, we may fail to influence the society within which we function.

This journal will be devoted to the philosophy of designing as well as to practice of designing. It will seek to establish industrial designing as a vital and far-reaching activity in the emerging industrial civilization of India.

This issue contains mainly the work of the students during the first year of the working of the Centre. The work illustrates mostly the synthesis part of the problem-solving process. Behind each solution, of course, lies the equally important analysis part.

V. N. Adarkar



Redesigning 'Ghamela'

Material handling in construction work in India is mostly manual. 'Ghamela' a pan-shaped container, is widely used in carrying various types of materials like cement mortar, concrete and bricks. Redesigning of 'Ghamela' was the first product design problem tackled by the first batch of the students of the Centre. This problem was carefully chosen, keeping in view the complexities involved and the experience

of students in solving the problem as a whole. The emphasis was on the application of systematic methods of design to a real situation.

Detailed analysis was done as a group project. Based on that, individual solutions were arrived at. One of the solutions is illustrated here. The main features of the design are: Stackability with or without material; Proper contour for hand grip; Elliptical shape to guide transfer of material;

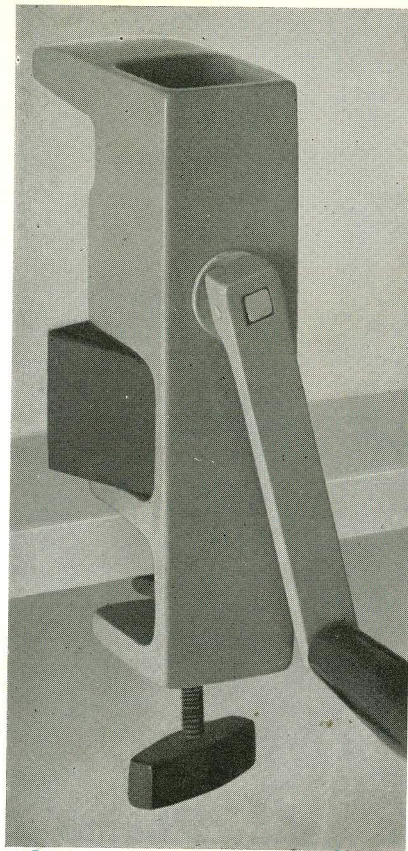
Suitable shape at the bottom— for stability on the ground and for a comfortable head rest.

The illustration given above shows the stackability of the redesigned Ghamela with and without contents.

Design : S. K. Dastoor

Guide : S. Nadkarni

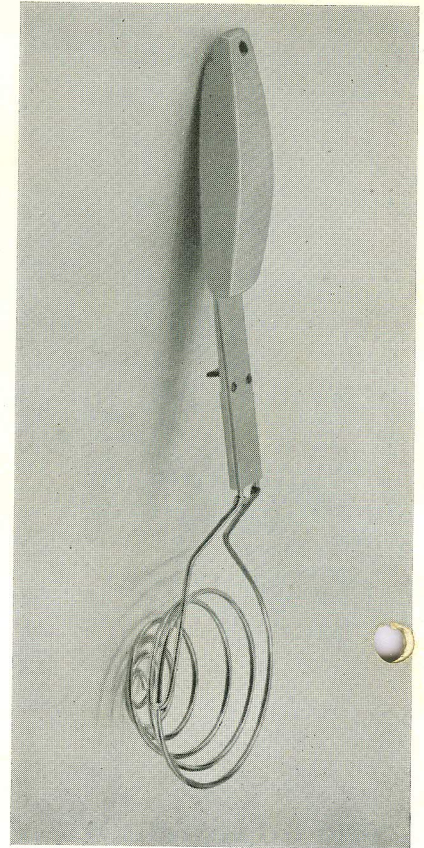




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Coffee Grinder : The body is of die-cast aluminium. An integrated handle at the top helps in holding the device while grinding. A container is included for collecting the ground powder easily. The unit with an integrated shape is comfortable to operate.

Design : S. B. Akki



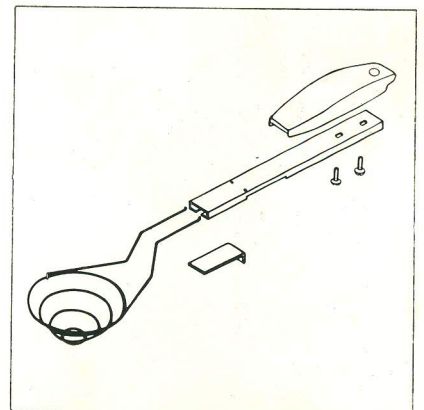
'Puri' Pick-UP Spoon : The functional element of the device is made detachable with the effect that the same handle and the arm could be used for various functions. The handle is suitably shaped for better comfort and is made of malamine resin for heat resistance. A slope given to the arm helps easy functioning of the spoon.

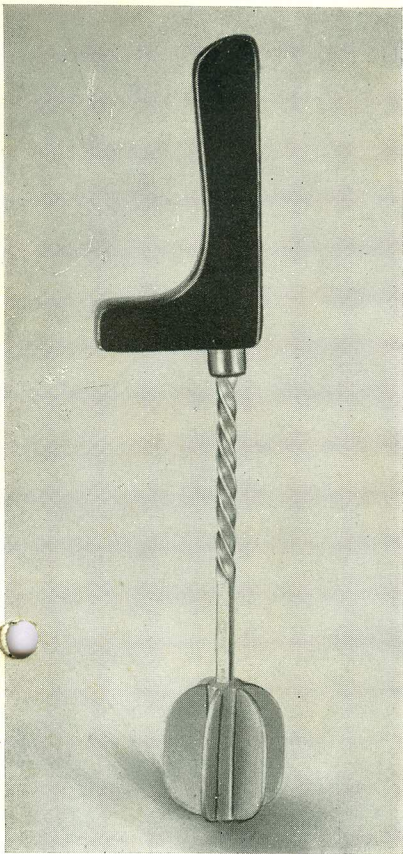
Design : M. J. Joshi

Kitchen Equipment

Design is a social act. The real success in design lies in accommodating the changing needs of the society. Our cooking methods and eating habits are rapidly changing. We do find a variety of mechanised kitchenware coming into the market. It is worthwhile to focus our attention to the hand-operated kitchen equipment which is very popular in middle income group. They are mostly age-old designs badly translated into new materials, and poor in quality. With this background a range of hand-operated kitchen equipment was chosen as the second product design problem :

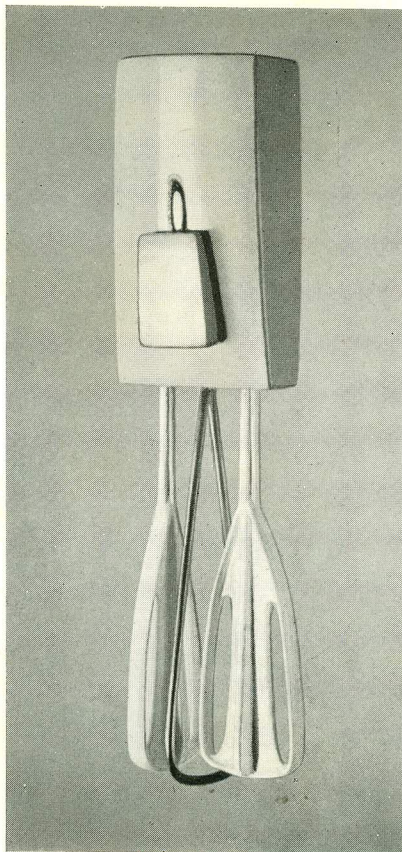
Guides : S. Nadkarni
 U. A. Athavankar
 A. Gopinatha Rao
 M. Chattopadhyay





Whisker: The whisker rotates as the handle is pressed downwards. A new shape of the handle provides non-slipping comfortable grip. The material of the handle is bakelite.

Design: U. J. Sheth

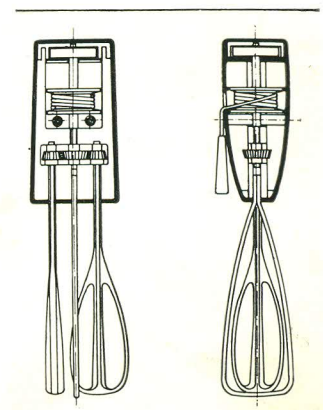
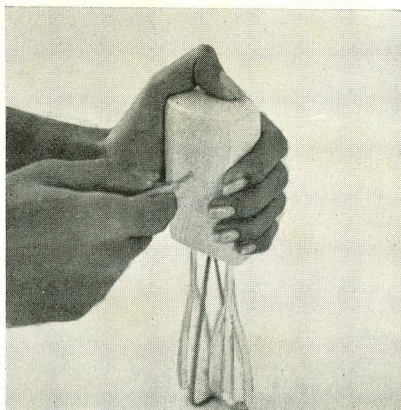
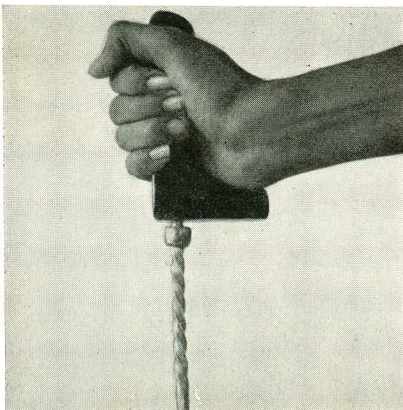


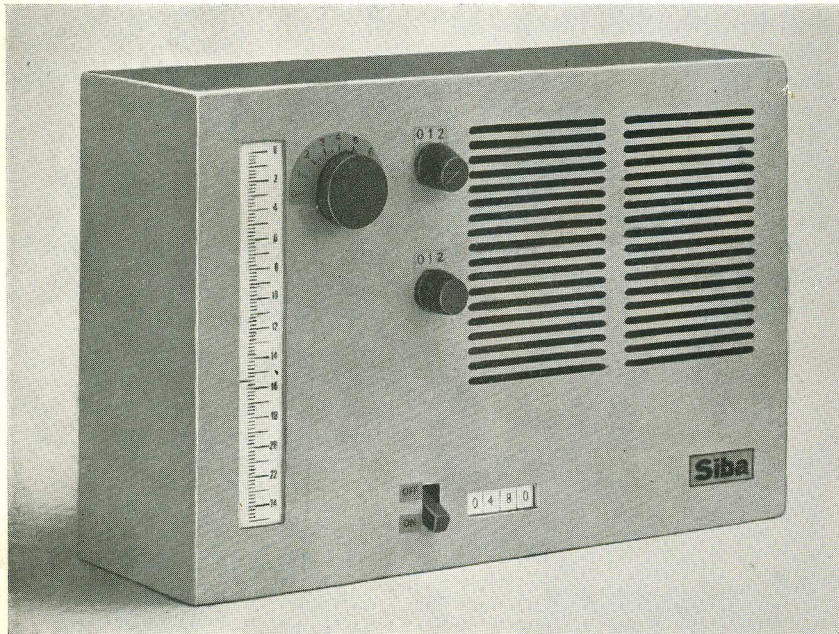
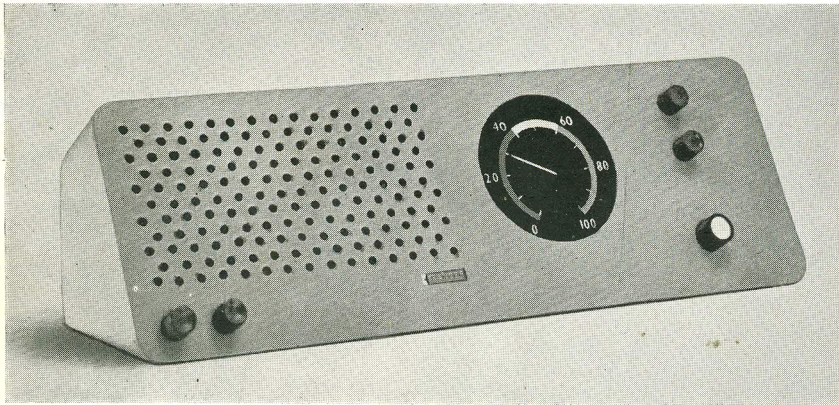
830/A13

Egg Beater: The design is based on a new concept of rotating the blades. The blades are rotated by pulling a string attached to a spring loaded shaft. The casing is of a plastic material. The nylon blades facilitate easy cleaning. The device can also be used as a mixer due to change in the shape of the blades. The whole unit would cost less than a conventional egg beater.

Design: P. Achutha Rao

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Order and System

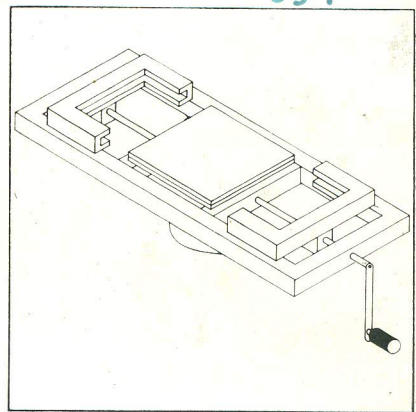
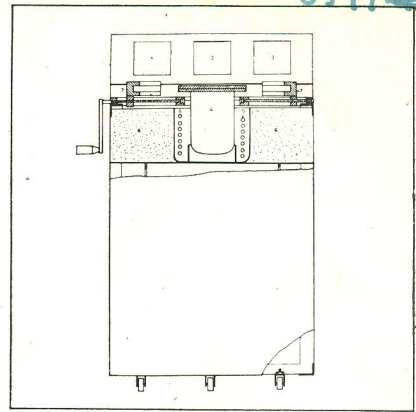
Knobs, grills, dials, counters and product graphics are some of the more widely used design elements. To make students familiar with these elements a problem is posed where they have to design a panel containing these elements. Each element is to be designed first with the ergonomical considerations of convenience of operation, readability of figures and instructions on the panel etc. Then the elements are to be ordered in five stages to create a system, by adding one element at each stage. The panel, further, has to fit into one of the four environments given :

- a. Vehicle
- b. Laboratory
- c. Industry
- d. Living space

The illustration indicates two solutions.

Design : Dev Suman
S. B. Akki

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Organ Preservation Unit

Products with greater complexity were chosen for the third product design problem. Three products, organ preservation unit, slide-projector and water cooler were tackled by three groups of students. The first is a new product developed by a M.Tech. student in Refrigeration at the Mechanical Engineering Department. This product was of particular significance in promoting the inter-departmental co-ordination as well as interdisciplinary understanding. Two of the products are illustrated here :

This unit can store organs like heart for few hours at a pressure of 15 atmospheres. The lid of the storage vault was very heavy and had to be tightened with twelve bolts, and this was supposed to be opened by a surgeon. The development was centred on the mechanical performance of the unit. Ergonomical and operational problems were not considered in depth and the redesigning work consisted of solving these functional problems as well as improv-

ing the overall performance and get-up.

The salient features are :

1. Easy transportability of the whole unit which is essential due to the very nature of its function.
2. Effortless, quick-opening and closing of the storage vault by an electrically operated sliding mechanism with provision for manual operation in case of failure.
3. Well-positioned, specially designed dials and knobs for better readability and operation.
4. Reduction in weight, noise and vibration due to replacement of open-type compressor unit by hermetically sealed compressor unit.
5. Direct readings of temperature by using an electronic thermocouple.
6. Elimination of redundant elements.
7. Compact, clean, simple shape suitable to hospital environment.
8. Suitability for batch production.

Top : Sectional elevation showing the internal arrangement of the unit.

Details of the sliding mechanism for closing and opening the storage vault.

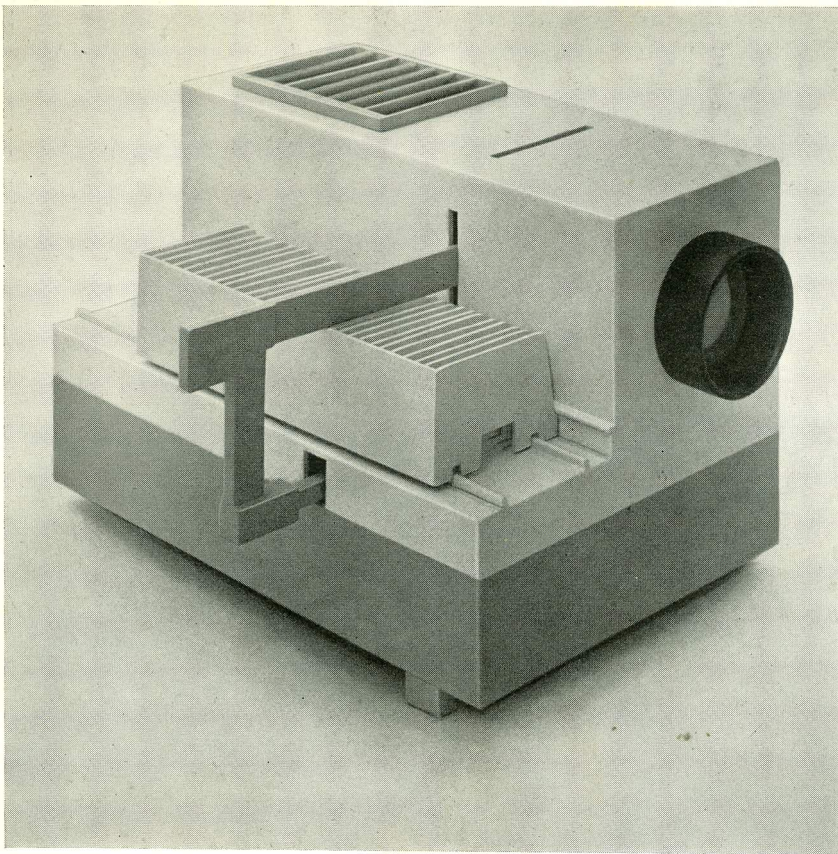
Bottom : Existing Unit

Design : M. J. Joshi
N. T. Nagarsenkar
U. J. Sheth
S. K. Dastoor

Guides : S. Nadkarni
U. A. Athavankar

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Slide Projector

Use of audio-visual equipment is increasing at a fast rate in the fields of education and entertainment. Manually operated slide projectors are still the most popular and are within the reach of all educational institutions. This problem was taken with a view to making it more comfortable to the operator as well as to evolve a compact unit with a simple mechanism.

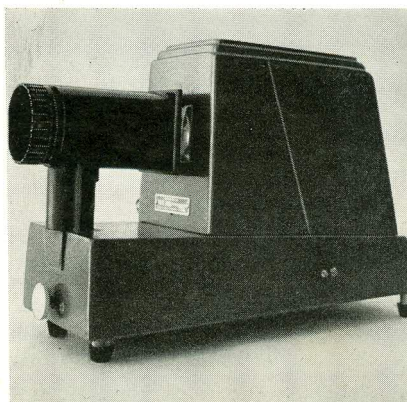
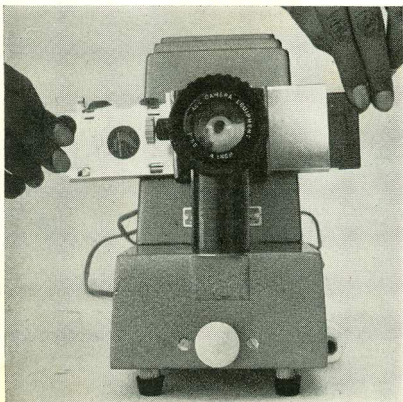
The main features of the design are :

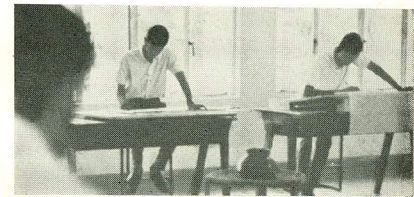
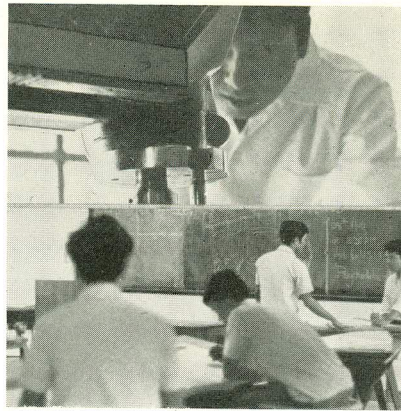
1. Provision of a cassette (capacity —30 slides) to eliminate the manual operation involved in changing each slide.
2. Possibility of continuous projection by provision for inserting the second cassette before the first is over.
3. Minimum disturbance to the operator from the light, with a suitable design of the grill.
4. Provision of individual adjustment of heights on either side.

5. Minimum noise by reduction of moving parts.
6. Provision of a collapsible screen to block the light rays during the time-lag between adjacent slides.
7. Improvement in overall appearance.

Design : P. Achutha Rao
 S. S. Kshirsagar
 V. L. Bakhale
 D. S. R. Raju

Guide : A. Gopinatha Rao





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Training Programme

The Industrial Design Centre at the Indian Institute of Technology, Bombay has been set up by the Government of India.

The object is to study, in Indian environment, the problems of industrial design, production and communication. The Centre has an elaborate programme to study design needs of Indian and international markets and to improve the quality of design of articles manufactured in India. It will strive to create a variety of practicable, economic and aesthetically superior designs for all kinds of mass-produced articles.

The Centre offers, at present, a 15-month Postgraduate Diploma Course in Industrial (Product) Design for which engineering graduates with an aptitude for art are eligible.

The first course was started on 5th January 1970, and the second course on 6th November 1970.

The Centre's programme for training its students is formulated to give them a thorough orientation

both in the practical aspects of the industry they will be connected with and in the theoretical aspects of Industrial Design. The Centre takes advantage of the sponsorship offered by various industries by sending its students for in-plant training, observation and study. Here, they are acquainted with the processes of production, the equipment used and the personnel manning the equipment and managing the production at every stage. Thus the student can apply his theoretical knowledge and conceptual skills to solve the specific design problems of a particular industry.

About thirty per cent of the total time is devoted to lectures. The remaining seventy per cent of time is spent on practical work.

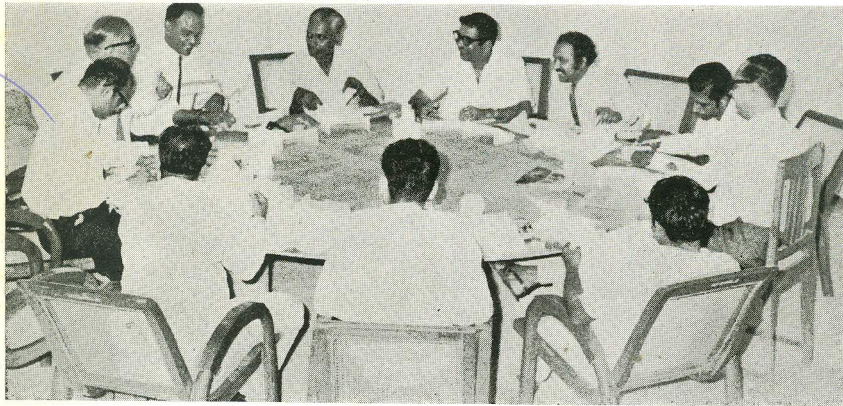
To enable the student to gain a thorough hold on Industrial Design as a complex, modern discipline, he is given the benefit of lectures on allied and related disciplines.

Frequent visits to art exhibitions and special film shows are arranged to help students develop a critical aesthetic sense and to enable them

to appreciate artistic experimentation. During the first quarter of the course basic design problems are dealt with. Students acquire skills in working with various materials. They are as well introduced to the communication techniques like Drawing, Design, Colour, Photography, Report writing, etc. Three product design problems along with advanced basic design tasks are tackled during the next three quarters. This helps in relating the abstract exercise with the problems in real situation. The lectures on various subjects are co-ordinated with the problems given during the period to facilitate conversion of theory into practice and extraction of theory from practice. From the beginning students are encouraged to carry out their own experiments in arriving at individual solutions and deriving their own formulae. However, practicality of each solution is checked by teachers and specialists from the industry. The last three months are exclusively devoted to the diploma projects each student has to undertake.



Glimpses of Expo '70 : An exhibition on Expo was organised at the Centre with the technical and visual information brought by Prof. S. Nadkarni and Shri U. A. Athavankar, who visited Japan in September '70. The exhibition was thought-provoking and useful to designers as well as public in general.



Second Course :

Eleven candidates were selected at the Centre by a committee consisting of Faculty members as well as representatives from the sponsoring industries. The Centre plans to train 50 designers over a period of 5 years for the sponsoring industries.

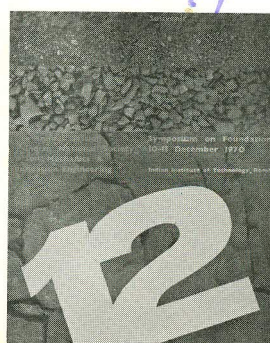
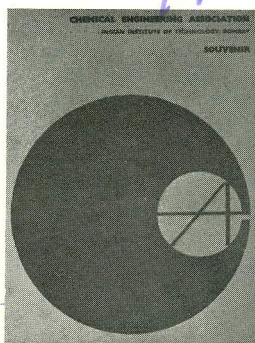
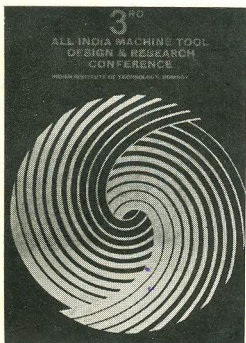
Participation of the Industries in the first and second courses :

1. Tata Engg. & Locomotive Co. Ltd.
2. J. K. Electronics Ltd.
3. Malleable Iron & Steel Castings Co. Pvt. Ltd.
4. Rallis India Ltd.
5. Tata Hydro Elect. Co. Ltd.
6. Motwane Mfg. Co. Pvt. Ltd.
7. Plastipeel Chemical Corpn.
8. Western Mechanical Industries.
9. Murphy India Ltd.
10. Larsen & Toubro Ltd.
11. Godrej & Boyce Mfg. Co. Ltd.
12. Mahindra & Mahindra Ltd.
13. Khira Steel Works Pvt. Ltd.
14. Garware Plastics Pvt. Ltd.
15. Mukand Iron & Steel Works Ltd.
16. Hind Cycles Ltd.
17. Kirloskar Brothers Ltd.

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Several conferences and symposia were held at the I.I.T. last year. The Centre took active part in designing visual identity programmes for them. Shown at the left are a few Souvenir covers designed by the Centre.

Diploma project assignments—First Batch :

System of office filing cabinets
U. J. Sheth

Electrical cooking range
S. K. Dastoor

Shearing machine
S. S. Kshirsagar

Public telephone with noise-limiting barrier
D. S. R. Raju

Domestic fire extinguisher
S. B. Akki

System of storage units (for mails and other daily necessities) for multi-storeyed buildings
P. Achutha Rao

Educational aid for teaching basic principles of electronics
K. N. Prakash

Ticket dispenser for bus conductors
V. Ramasubban

System of control console for testing electrical equipment
M. J. Joshi

System of laboratory furniture
N. T. Nagarsenkar

School bag
V. L. Bakhale

Seats and their arrangement in jeep automobile
Dev Suman

Faculty

The Centre has a distinguished visiting faculty comprising of professionals, experts from industry, professors from various leading educational institutions including the IIT Bombay itself, besides its full-time teaching staff.

Projects assigned to the Centre by the different Organisations :

Design of pillar-type post boxes	Posts & Telegraphs Department, Government of India.
Street furniture	City and Industrial Development Corporation of Maharashtra Ltd. (Twin City Project)
Organ preservation unit	In collaboration with Mechanical Engineering Department, I. I. T. Bombay and with the cooperation of KEM Hospital and G. S. Medical College.
Project study on the role of industrial design and visual communication with special reference to its cultural impact on the society	Dr. Prem Kirpal, President, Executive Board, UNESCO.

Output 1971

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V. N. Adarkar : Adviser

S. Nadkarni : Faculty-in-charge

A. Gopinatha Rao

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Industrial Design Centre
Indian Institute of Technology
Powai, Bombay-76 NB

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