



भारतीय
indian handicrafts
हस्तशिल्प
continuing tradition



अमृत राज आई.पी.ओ.एस.
विकास आयुक्त (हस्तशिल्प)

Amrit Raj IPoS

Development Commissioner (Handicrafts)
Ministry of Textiles, Government of India



Message from Chairperson

I am pleased to present the annual report of IICT, Bhadohi for the year 2022-23.

The performance of the institute in its four portfolios, namely Human Resource Development (HRD), Design Creation & Development (DCD), Research and Development (R&D) and Technical Support to Industry (TSI) is admirable.

The institute is playing a vital role in providing services to industry in an efficient, reliable and professional manner as evident from continued accreditation of IICT labs from NABL, accreditation of B.Tech. (Carpet & Textile Technology) course from both Textile Institute (Manchester), U.K. as well as by National Board of Accreditation (NBA), India. This is strengthening the academic repute of the institute. Furthermore, I am glad to know that the work of laboratory up-gradation to international level is likely to complete shortly which shall certainly benefit the carpet exporters to a great extent. As a Chairperson of IICT, I commit myself to leave no stone unturned for the all round development of institute.

I am sure that IICT will not only continue to maintain its standard but flourish further.

I wish IICT to continue its efforts in making the carpet industry overall progressive and result oriented.

Sd/-

(Ms. Amrit Raj)

DC (Handicrafts) & Chairperson, IICT



सोहन कुमार झा (आई.ओ.एफ.एस.)

Sohan Kr. Jha (I.O.F.S.)



सत्यमेव जयते

यसिस्ट निदेशक (हस्तशिल्प)
कार्यालय विकास आयुक्त (हस्तशिल्प)
वस्त्र मंत्रालय, भारत सरकार,
पश्चिमी खण्ड-८, रामाकृष्णपुरम,
नई दिल्ली-११० ०६६

Sr. Director (Handicrafts)
Office of the Development Commissioner (Handicrafts)
Ministry of Textiles, Government of India,
West Block-7, R. K. Puram, New Delhi-110 066
Phone : 26178640 Fax No. : 26193085
Website : <http://handicrafts.nic.in>

Message from the Desk of Vice-Chairman

I am very glad to see the steady performance of IICT in all its four portfolios as described in Annual report for the year 2022-23.

It is also a matter of proud that stakeholders are utilizing these portfolios in an effective manner.

I am convinced about the continuous improvement of the institute through constant meticulous endeavor made by institute members.

IICT has put commendable efforts in conducting quality education and various training programme in the country for the benefit of carpet and its allied industry. I am glad to know that students have been placed in well-known companies of national and international repute.

Similarly in other portfolios too, IICT is proactive and industry friendly and hence deserves to be congratulated.

I wish IICT to excel for becoming International Centre of Learning.

(S. K. Jha)

Sr. Director (Handicrafts) &
Vice-Chairman, IICT



प्रो० डा० सनत कुमार पाल, प्रभारी निदेशक
Prof. Dr Sanat Kumar Pal, Director in Charge

Message.....

Message from the Desk of Director In-charge

IICT Bhadohi has stepped into 23rd years of its functioning with 788 Graduates and more than 7000 artisan trained under various training programme. The human recourses developed by IICT over these years has served carpet & textile sector. In the area of technical services we have NABL accredited laboratories and also facility for eco testing which is under trial. With development in product and technology IICT has been working continuously in the area of research and development. Through well equipped design studio IICT provides training and consultancy for carpet designs. With these achievements, me and my team gain confidence towards achievement of vision to be a Centre of Excellence in Carpet, Textiles and relevant areas of technical education by promoting, aiding and fostering the development of the sector through our mission. Through industry institute interaction meet (IIIM) IICT link with all our industry partners/stakeholders.

In cultural activity IICT Bhadohi has celebrated its foundation day as Institute day on 1st November. On this occasion our cultural team has organized a cultural evening from 5:30 pm in open air theatre of IICT campus, Chauri Road, Bhadohi. The literary committee has released institute's annual magazine "Tana-Bana" depicting out achievements. Annual sports day was celebrated in the institute in January & the winners were awarded on 26th January. Saraswati Puja & Vishwakarma Puja are celebrated with joy by all our students and staff irrespective of caste and creed. National festivals have always been our attraction for celebration. Following the tradition 2nd year students welcome new batch in 1st year and 3rd year students give farewell to outgoing final year batch. All staff witness this ritual of bondage between the students. With all this activities we IICT family nurture the institute as a home.

I wish success to the students, staff and all our stakeholders in all their future endeavour.

With warm regards.

Prof. Dr Sanat Kumar Pal,
Professor & Director in-Charge, IICT



Indian Institute of Carpet Technology, popularly known as IICT, has been set up by O/o Development Commissioner (Handicrafts), Ministry of Textiles, Govt. of India in 1998 as a registered Society under the Society Registration Act, 1860.

IICT became truly functional in the year 2001 by launching B.Tech. (Carpet & Textile Technology) programme, a unique degree programme of its kind, with 20 intake which has been increased subsequently to 60. IICT was set up to provide all possible technical support to the Carpet, Textile & other related sectors in the form of technical experts, Research & Development, etc. for the continual growth to make the industry competitive at the world level. Institute has been constantly trying to fulfill long time pending demand of the sector for technical experts through its B.Tech. technocrats. Industry has also come forward and placed these technocrats suitably in various organizations. IICT is providing world class quality education to its students by targeting to meet the anticipated requirements of the stake holders through formal or informal feedbacks from the various organizations time to time. In addition to B.Tech., other trainees of the institute in various courses have also been doing well and holding good positions in the organizations. The laboratories of Institute are **NABL** (National Accreditation Board for Testing and Calibration Laboratories) accredited which makes its testing reports given to the exporters, valid in many countries of the world. The B.Tech. (CTT) course of the institute is approved by AICTE, New Delhi & got accredited by NBA (National Board of Accreditation). The institute is also affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow.

Campus & Facilities

IICT is situated in Bhadohi which is famous in the world as Carpet belt of India. The stake holders of Bhadohi and adjoining districts can take maximum locational advantage as the institute has been set up at Bhadohi. Bhadohi is about 45 Kms away from holy city Varanasi and about 75 Kms from Prayagraj City, & 30 Kms from Mirzapur. The campus of IICT is 4 Kms from Bhadohi Railway Station and situated on Main Road known as Chauri Road on the outskirts of Bhadohi town. The campus is free from all sorts of pollution, providing a peaceful atmosphere for studies and research which is spread over 10 acres of land, that comprises of state of the art Administrative building consisting of Classrooms, Laboratories, Conference Hall, Library, Design Studio & Workshops. The campus has quality facilities like separate Hostels for Boys & Girls, residential accommodation for employees, open Air Theater for performing cultural activities, open space for Games, 24 hour electricity supply backed by generator and water supply system having deep borewell. Institute has also obtained 16.5 acres of land from Govt. of Uttar Pradesh at Pipris in Bhadohi, and few infrastructure facilities like Workshop shed, training centre with dormitory and staff quarter have been created.

Statement of Vision

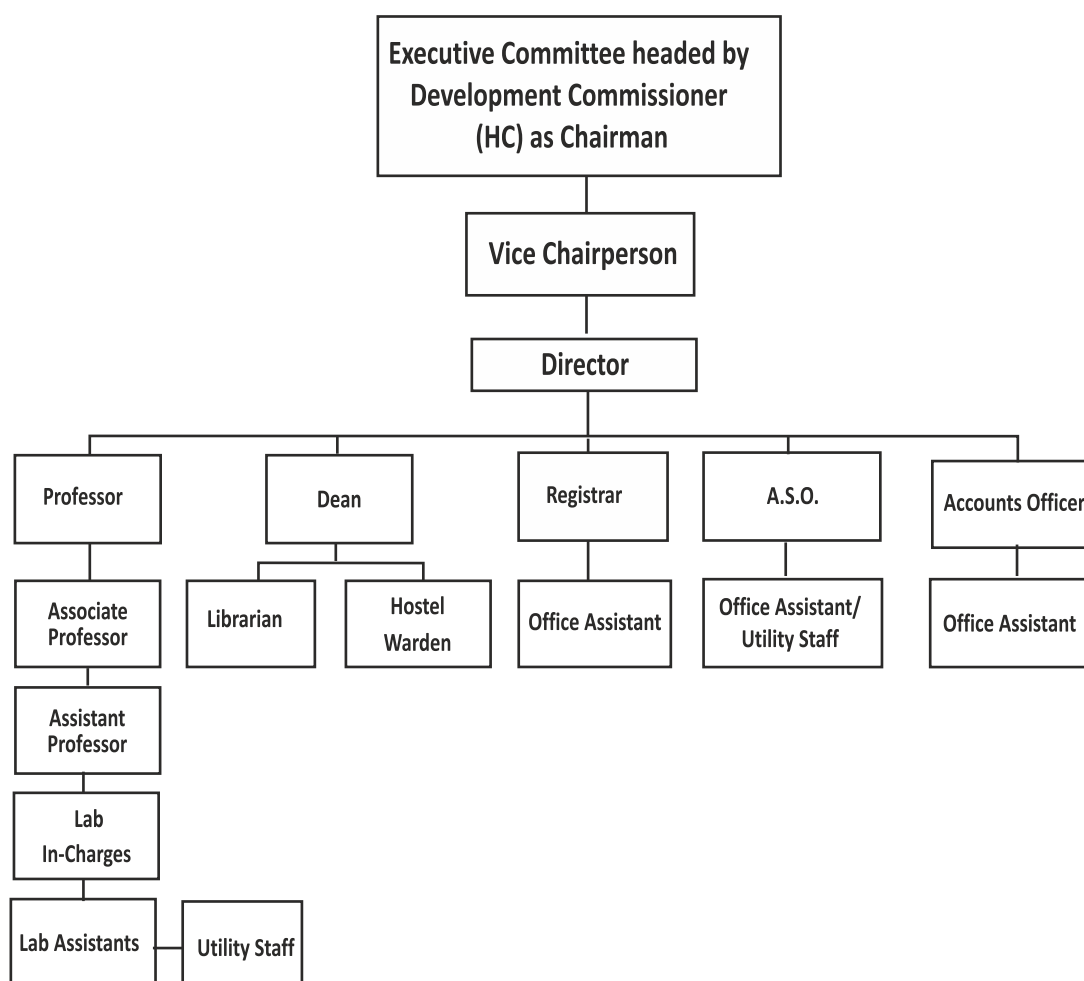
- To be a Centre of Excellence in Carpet, Textiles and relevant areas of technical education by promoting, aiding and fostering the development of the sector.

Statement (s) of Mission

- To create human resources filled with Indian cultural diversity and fellow feeling, and having sound foundation of knowledge in carpet, textiles and relevant areas of technical education.
- To promote rigorous and cutting edge research activities in the area of carpet, textiles and related areas of science and technical education.
- To provide technical support to carpet and allied industries by enabling intensive interaction for design creation and laboratory testing.
- To develop entrepreneurs in the field of carpet and allied sectors.
- To improve the quality of life in rural areas through various HRD and skill development programme.

Quality Policy

- To provide qualitative education to our students which targets to meet them anticipated requirements of stake holders.
 - To render timely and satisfactory services in all portfolios to the Industry and all other stake holders.
 - To improve Quality Management System on continual basis through complying with the requirements of standards
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1. Development Commissioner (Handicrafts) & Chairman, IICT, Office of the Development Commissioner (H), West Block No. 7, R. K. Puram, New Delhi-110066.
2. Sr. Director (Handicrafts) & Vice-Chairman, IICT, Office of the Development Commissioner (Handicrafts), West Block No. 7, R. K. Puram, New Delhi – 110066.
3. Ex-officio-Secretary, Small Scale Industries & Export Promotion, Govt. of U. P., 4th Floor, Sachivalaya, Lal Bahadur Shastri Bhawan (Annexe), Lucknow – 226001 or his/her nominee.
4. Director (Finance), Ministry of Textiles, Govt. of India, Udyog Bhawan, New Delhi or his/her nominee.
5. Divisional Commissioner, Vindhyachal Mandal, Mirzapur, Uttar Pradesh.
6. District Magistrate and Collector, Bhadohi, Sant Ravidas Nagar, Uttar Pradesh.
7. Chairman/Executive Director, Carpet Export Promotion Council, Rajiv Gandhi Handicrafts Bhawan, Baba Kharak Singh Marg, Connaught Place, New Delhi-110 001.
8. President, All India Carpet Manufacturers Association, Maryadpatti, Bhadohi, Uttar Pradesh.
9. Sr. Faculty/Dean/Registrar, IICT- Director's nominee.
10. ED, National Centre for Design (NCD) (Set up by Ministry of Textiles, Gol), Hall No.1 (3 rd Floor), Rajiv Gandhi Handicrafts Bhawan, Baba Kharak Singh Marg, Connaught Place, New Delhi-110 001.
11. Head, Dept. of Textile Technology, Indian Institute of Technology, Hauz Khas, New Delhi.
12. Chairman, All India Council for Technical Education (AICTE), Nelson Mandela Marg, Vasant Kunj, New Delhi-110070, or his/her nominee.
13. Vice Chancellor, Dr. A.P.J. Abdul Kalam Technical University, Sec-11, Jankipuram Vistar, Lucknow-226031, Uttar Pradesh, or his nominee.
14. Prof. S. P. Borkar, Dean (Administration), Dept. of Textile Engineering, VJTI, Matunga, Mumbai, Maharashtra.
15. Dr. Rajesh Kumar, Professor, Structural Engineering Division, Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi- 221005, Uttar Pradesh.
16. Mr. Y. K. Roy, M/s Kaka Overseas Ltd, Hariaon, Gyanpur Road, Bhadohi-221401, Uttar Pradesh.
17. DD/AD (IICT), O/o DC(HC), West Block No. 7, R. K. Puram, New Delhi-110 066.
18. Director & Member Secretary, IICT, Bhadohi.

Executive Committee Meeting & Annual General Meeting held during the year

ECM	ECM
67 th EC meeting dated 01.07.2022 at New Delhi	68 th EC meeting dated 29.03.2023 at New Delhi

Overall Strength as on 31st March 2023

Sl.No.	Name of the Employees	Designation	Qualification(s)
Faculty members			
1.	Prof.(Dr.) Sanat Kr. Pal	Professor & Director In-charge	Ph. D.(MSU, Baroda, Vadodara), M.Tech. & B.Tech.
2.	Dr. R. Karmakar	Associate Professor	Ph. D. (Pu. University Jaunpur), MA (Painting), B.F.A.
3.	Dr. R.K.Malik	Associate Professor	Ph. D. (APJAKTU Lucknow), M.Tech. (IIT Delhi), B.Tech.
4.	Dr. S.K. Pandey	Associate Professor	Ph. D. (APSU, Rewa), M.C.A, M.Tech (CS), M.B.A.
5.	Dr. Betty Dasgupta	Assistant Professor	Ph. D. (IIT BHU), B.Sc.(Tech.) (ICT Mumbai)
6.	Dr. Anu Mishra	Assistant Professor	Ph. D., M.Tech. (IIT Delhi), B.Tech.
7.	Dr. Shravan Kr. Gupta	Assistant Professor	Ph. D. (APJAKTU Lucknow), M.Tech., B.Tech.
8.	Dr. Moumita Bera	Assistant Professor	Ph. D., M.Tech. (IIT Delhi), B.Tech.
9.	Dr. Atanu Manna	Assistant Professor	Ph. D. (IIT Kharagpur), M.Sc. (Jadavpur University)
10.	Dr. H. S. Mohapatra	Assistant Professor	Ph. D. (NIT Jalandhar), M.Tech., B.Tech.
11.	Dr. Jayant Deshpande	Librarian	Ph. D. (CMJ University, Meghalaya), M. Com, M. Lib., PGDCSC.
Unit In Charges			
12.	Er. B.C. Ray	Workshop I/c	M.Tech. (Textile Engg.), MHRM, MA (Public Admn.), MIE.
13.	Shri C.S.Bajpeyee	Design Lab I/c	M.F.A. & B.F.A. (Textile Design), F.V.A., B.H.U.
14.	Shri Dipankar Jana	Chemical Lab I/c	M.Tech. (Textile Engg.) IKJPTU, Punjab.
15.	Shri Anupam Agrawal	Physical Lab I/c	M.Tech. (Textile Engg.) IKJPTU, Punjab.
Lab Assistants			
16.	Shri Jaihind Chauhan	Lab Assistant	Diploma (Textile Processing Technology)
17.	Shri Amitabh Chatterjee	Lab Assistant	Diploma (Mechanical Engg.)
18.	Mrs. Preeti Chaurasia	Lab Assistant	Diploma (Handloom Technology)
19.	Shri Govind Yadav	Lab Assistant	B. Tech. (Electronics & Instrumentation)
20.	Shri Darpan Singh	Comp. Lab Assistant	M.C.A., M. Tech. (CSE)
Administrative Staff			
21.	Shri Siddhartha Shukla	Admin. Cum S. Officer	B. Tech. (Civil Engg.)
22.	Sh. Durgesh Kumar Tripathi	Accounts Officer	M. Com.
23.	Shri Umakant Srivastava	Admin Assistant	M.B.A. (HRM)
24.	Mohd. Waseem Ansari	Library Assistant	M.B.A. (HRM)
Other Staffs			
25.	Shri Jagdish	Unskilled Worker	Intermediate
26.	Shri. Vijay Kumar Gupta	Electric Technician	ITI (Electrical)
27.	Shri Naresh Kumar	Driver	High School

Research Publications

Dr. M. Bera

1. Moumita Bera, Supriyo Chakroborty, "Knitted Active wear", in Eds.Subhankar Maity, Sohel Rana, Pintu Pandit, Kunal Singha "Advances in knitting Technology", Elsevier Publication, 2021, Page 255-305. Paperback ISBN: 9780323855341, eBook ISBN: 9780323855358.
2. Moumita Bera, "Auxetic Textiles" in Eds Subhankar Maity, Kunal Singha, Pintu Pandit "Functional and Technical Textiles", Elsevier Publication, 2023, Page no.543- 614, Paperback ISBN: 9780323915939, eBook ISBN:9780323915946.

Dr. A. Manna

1. S. Majee, A. Maji, and A. Manna, Numerical radius and Berezin number inequality, J. Math. Anal. Appl., 517(1) (2023), 126566.
2. B. Das and A. Manna, On the improvement of Hardy and Copson inequalities, RACSAM, 117(2), 2023, Article No. 92, 18 pages.

Dr. H. S. Mohapatra

1. H. S. Mohapatra, A. Mishra and S. K. Gupta, Preparation and Evaluation of Electro-Conductive Threads from Waste Carpet, Journal of the Textile Association, 83/4, Nov-Dec. 2022, 233-236.

FDP attended by faculty

Dr. M. Bera

1. FDP on "The Futuristic Trends In Textile & Apparel Engineering (FTTAE-2022)" sponsored by AICTE by Dept. of Textile Engg., GZSCCET, MRSPTU, Bathinda, Punjab-151001 from 21st - 26th March 2022 (6 days).

Dr. S. K. Gupta

1. Participated in one week "Laboratory Assessor's Training Course (Accreditation Criteria ISO/ IEC 17025:2017)" from 08/10/2022 to 12/10/2022 conducted by National Accreditation Board for Testing and Calibration Laboratories (NABL), Gurugram at Institute for Studies in Industrial Development (ISID), Vasant Kunj, Delhi.

Dr. Jayant Deshpande

1. Successfully participated in an IQAC initiated one day Librarians Development Program (LDP) on "Enhancing the Library Services: Past, Present and Future" organised by SB.Patil Institute of Management library on 11th January, 2023.

Conference/workshop attended

Dr. A. Manna

1. International Online Conference on "Current Trends in Abstract and Applied Analysis", Ivano-Frankivsk Mathematical Society, Ukraine, May 12-15, 2022.
2. Attended 'Online Interdisciplinary Refresher Course on Academic Writing and Research', Teaching Learning Center, Tezpur University, May 16-30, 2022.

Dr. S. K. Gupta

1. Attended 34th National Convention of Textile Engineers and National Conference on Innovative Textile Materials at IIT Kanpur scheduled on 10-11 September, 2022 organized by The Institution of Engineers (India), Kanpur Local Centre in association with The Textile Association (India), Uttar Pradesh Unit.

Dr. H. S. Mohapatra

1. International e-Conference on Biopolymers, Asian Polymer Association, 14th July-16th July 2022.

Dr. Jayant Deshpande

1. Participated in the workshop entitled "Curriculum Development & Academic Quality Improvement" through hybrid mode from 1/3/2023 to 5/3/2023 at Indian Institute of Carpet Technology, Bhadohi.

Conference/workshop/seminar conducted

Dr. A. Manna:

1. Science for Global Well-being through Engineering, One day seminar at IICT Bhadohi, 28/02/2023.

Dr. H. S. Mohapatra

1. Curriculum Development & Academic Quality Improvement, IICT Bhadohi, IICT Bhadohi, 01/03/2023 to 5/3/2023.

Training

1. Successfully participated in IP awareness/Training program under National Intellectual Property Awareness Mission on Aug 05, 2022, organised by Intellectual Property Office, India.



Institute's Portfolios

IICT is functioning through its four portfolios namely :-

1. HRD (Human Resource Development)	2. DCD (Design Creation & Development)
3. R&D (Research & Development)	4. TSI (Technical Support to Industry)

1. HRD

(Human Resource Development)

IICT PORTFOLIO

B.Tech. course in Carpet and Textile Technology (CTT):

Started in the year 2001. Thereafter, specializations in Advances in Carpet Technology (ACT) / Home Textile Technology (HTT) / Textile Design Technology (TDT) have also been integrated with the due approval of A. P. J. Abdul Kalam Technical University, (AKTU) Lucknow. The institute is accredited to Textile Institute, Manchester, U.K. IICT has been awarded twice star performing institute of the university.

Total **788** students have graduated till date from institute and placed all over the country & abroad in carpet & textile industry. Many students have opted for higher studies in institute like IITs, NITIE, ISM, IIM & NIFT.

Quality education is imparted to B. Tech. students. Many students have been awarded with Gold, Silver & Bronze medals for their academic excellence. Their academic performance are evident from the table given as below :-

University toppers in Textile Group

Batch	Name of Student Gold Medal	Name of Student Silver Medal	Name of Student Bronze Medal
2006-2010	Ankit Kumar Bhagat	.....	.....
2007-2011	Nisha Kumari	Patanjal Kumar	Anupam Agrawal
2010-2014	.....	.....	Sadiya magsood
2011-2015	Amreen Fatima	Govind Yadav	.....
2014-2018	Priya Singh	.....	Shivangi Shukla
2015-2019	.....	.....	Gaurav Suneja
2016-2020	.....	.....	Pallavi priya
2017-2021	Twinkal Suneja	.....	Aadarsh Mishra
2018-2022	Abhishek Yadav	.....	Juhi

Examination Result and Performance

During academic year 2022 - 23, 53 students of 19th batch (2019-23) passed B.Tech. examination successfully.

In 8th sem., 53 students appeared in exam.

In 6th sem., 65 students promoted to fourth year (Currently 7th sem.)

In 4th sem., 32 students promoted to third year (Currently 5th sem.)

In 2nd sem., 52 students promoted to Second year (Currently 3rd sem.)

Admission to B. Tech. 1st year

Current intake in B. Tech. programme is 60. (+extra 03 seats EWS & 03 seats TFW). For this, admission is done through JoSAA / CSAB/ UPTAC.

Fees Structure

The fees structure for admission to B.Tech. course is given as below :-

B. Tech. fees structure

Newly admitted B. Tech. 1 st year & 2nd year Lateral Entry		
Fee Head	Amount (Rs.)	
	Hosteller	Non-Hosteller
Tuition Fees	55,000/-	55,000/-
Hostel Fees	15,000/-	.....
Caution Money	5,000/-*	5,000/-*
Development charge	10,000/-	10,000/-
Other Charges	15,000/-	15,000/-
Alumni Registration fees	1000/-*	1000/-*
Mess Charges	34000/-	-----
Total	1,35,000/-	86,000/-

*This fees is paid once at the time of new admission .

Commencement of the Session 2023-24:

The new session has been commenced from 16th Aug. 2023 for the B. Tech. VII- Semester classes and B. Tech. III & V Semester classes have been started from 01st Sep. 2023. First Semester Class has been started from 01st Oct., 2023.

Short Term Courses:

Besides B. Tech. programme, IICT conducts various employment oriented courses that to serve the society as a whole. In the coordination of the above endeavor, 1138 candidates have been trained through ISDS and 3500 artisans have been trained through CHCDS scheme till date.

Modular Employable Skill (MES) based skill development program in Application of Computer and IT in Carpet Manufacturing, Carpet and Textile design using CAD, Yarn dyeing, Carpet weaving, Spinning of woolen yarn, Washing & Finishing of Carpet are being run by the institute. More than 7000 artisans have been trained so far to mitigate the skill gap over the period.

2. DCD

(Design Creation & Development)



IICT PORTFOLIO

Design Bank Created- More than 15000 designs are in place out of which around 4622 designs have been utilized by industry for commercial purpose. 114 designs have been created under design bank.

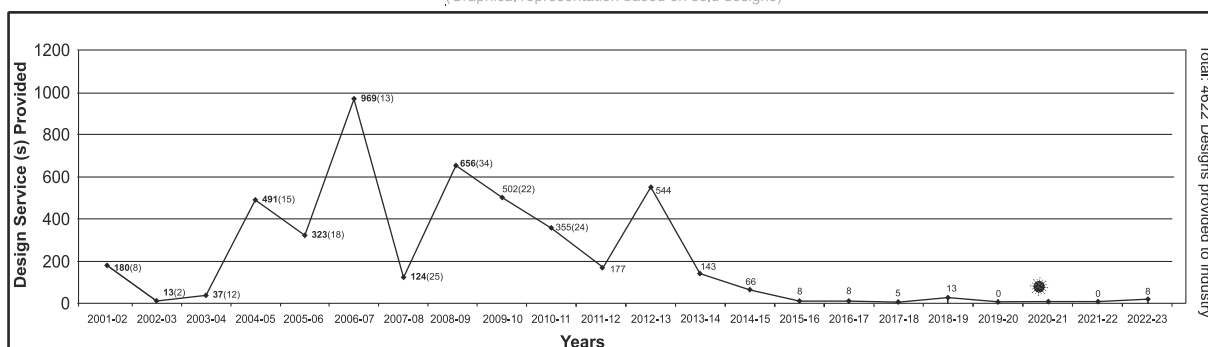
The Design Bank includes Traditional INDIAN Motifs (Like : Harappa, Ajanta, Mughal, Rangoli, Jaipuri, Fulkari, Kantha, Paithani, Kalamkari, Banarasi, Jamewar etc.), modern motifs etc. as per trend.

Kibby Carpet Sampling Machine is also used by the industry to develop prototype samples of size 18"x18"

Industry at large has come forward and taken advice and benefitted from design bank, creativity and development of global value at local cost.

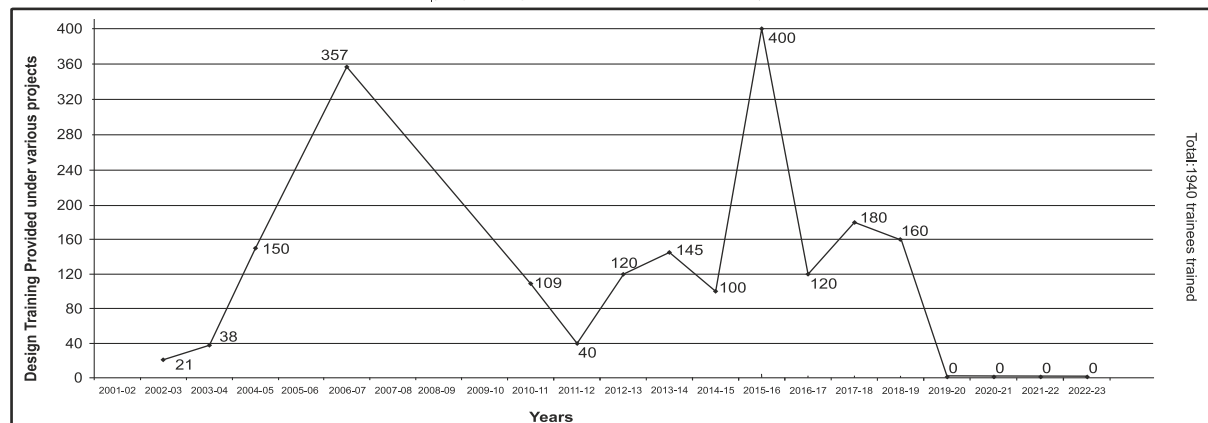
Design Lab Services

(Graphical representation based on sold designs)



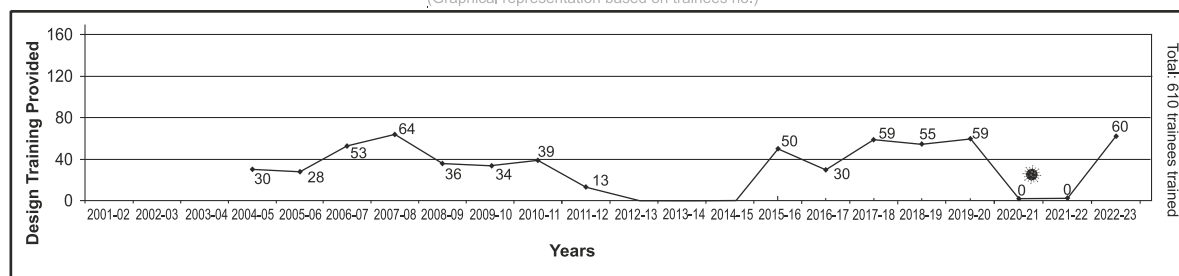
Trainees trained under various projects through Design Lab

(Graphical representation based on trainees no.)



Trainees trained by Design Lab

(Graphical representation based on trainees no.)



NOVEL APPROACH TOWARDS ENERGY STORING SMART GARMENTS

All the sensors, drives, and other electronic components on smart textiles need to have the power to perform. But the traditional power structures are rigid and have great limitations. To solve the problem, it is necessary to develop a flexible, lightweight, portable storage device. Super capacitor is an emerging energy storage device with high power density, short charging time, excellent reversibility and long life cycle, energy conservation and so on. The present study aims to evolve fiber Based super capacitors and fabricate an energy storage system with flexibility while maintaining outstanding performance. This can further used in wearable electronics.

Objectives/Aims	Identified Objectives/Aims Achieved
1) To fabricate Carbon fibre based Supercapacitor device by using Multiple Metal Oxides(MOs)	Novel Combination of various Metal Oxides has been studied for electrode preparation.
2) To activate surface by using different approaches.	Nano Architecture developed and surface was activated by directly growing it on fibres surface through hydrothermal deposition and also by coating the hydrothermally grown material by slurry preparation.
3) Characterization of samples	Various characterizations such as Morphological and electrochemical behaviour have been carried out.

Future Outlook/Advantages

The future of electronic devices is expected to include wearable electronics with stretchable circuitries, implantable sensors, and smart skins. For example, a smart skin could offer on-body sensing to monitor healthcare data and physiological signals in human bodies to support people in various activities and situations. As above-mentioned, Supercapacitors (SC) are energy storage devices for such systems. For wearable devices, fiber like capacitors are particularly suitable.

Wearable electronics are thought to have great potential in areas including communication and healthcare, Soldiers, emergency personnel, energy harvesting etc.

Common supercapacitors and batteries are sealed inside rigid metallic and/or plastic housing for safety reasons. Thus, they are usually large in size, heavy in weight, and mechanically inflexible. In contrast, textiles are manufactured by spinning short and flexible natural or synthetic fibers into long 1D yarns, and yarns are further woven or knitted into 2D/3D textiles. Most of the textiles are highly flexible and can easily recover after bending or crumpling also weight is comparatively lesser.

A: Product Development:

Quite a few product development activities have been completed at institutional level and or in collaboration which includes:

- **Coir Based Carpet**
- **Silk Carpet**
- **Eri silk Carpet**
- **Modacrylic based carpet**
- **Handmade Astroturf type Carpet**
- **Natural fiber based carpet**
- **Natural dyeing**
- **Substitute to polyester shaggy**
- **Bujbun Utilization**
- **Vertical Blind**

- **Coir Paper and Coir Silk**

Another revolutionary research supported by CCRI Alleppey, Kerala of Coir Board, Kochi is continuing for coir silk. Commercial Stage trials with reputed Rayon Manufacturing co. (Grasim & Century Rayon) are being undertaken. The value addition will benefit coconut growers and shall support industrialization for coir paper & coir silk Production in coconut production intensive states like Kerala, Tamilnadu. - A proprietary move on supplement to Make in India Mission - Industry to come forward and explore

- **PPE Coverall (Body Suit and Shoe Cover)**

PPE Coverall (Body Suit and Shoe Cover) developed in two categories- disposable (280gm) and reusable (300 gm). It has been developed in partnership with Techno-chem Industries. A special coating is done on nonwoven fabric in case of disposable and on polyester in reusable PPE Coverall. PPE suits developed so far are not breathable. Hence they are not comfortable. The newly developed product is breathable and light weight, hence comfortable. It meets the stringent requirement of MoHFW and there fore, recommended for doctors, nurses and other para medical staffs.



Disposable



Reusable

- **Recycling & Reusing of Fibrous Waste of Carpet Industry**

Waste from carpet industry includes fibres like Wool, Jute, Polyester, Nylon etc. Mostly the waste fibres are disposed to landfills, which enhances soil pollution. These waste fibres can be recycled and reused to develop many technical fibrous structures.



In search of innovative product with carpet waste, composite materials were prepared by hand layup technique with carpet waste and unsaturated polyester resin. Ratio of fibre and matrix were changed to meet various end use requirements. IICT developed two products. When the matrix percentage was kept high in the composite, then the product was used as replacement of wood. Similarly, when the fibre percentage was kept high in the composite, the product was used as acoustic material.

- **Fabrication and Evaluation of Heating Pad from Waste Carpet**

Waste woolen hand knotted and hand tufted carpets, all made of 100% wool fibers were made electrically conductive by in situ chemical polymerization of pyrrole. Before polymerization reaction takes place, hydrolysis of handmade and hand tufted carpets were done for better deposition of polypyrrole on the material. The average surface resistivities were found to be 1013.08 and 1234.12 Ω m, respectively, for Hand knotted and Hand tufted carpets. It can be used as heating pad for the people suffering from back pain.



- **Application of Jute materials in hand made carpets**

In this research, a study has been done on the application of jute pile yarns in Persian hand knotted carpet and tufted carpet. Three types of commercial yarns (wool, untreated jute and woollenized jute) as well as three types of chemical treated jute yarns (hydrogen peroxide bleached, softened bleached and woollenized yarns) have been applied as pile yarns in hand made carpets. Cost benefit analysis of handmade carpets shows that material contribution of total cost decreases when jute yarns are used as pile.



B: Technology Up gradation

Commendable efforts have made by IICT to up grade the technology being used in the carpet industries. These are :-

- Concept of Ergonomic and Flexible Tufting Frame
- Cross Bar Horizontal Loom CBHL (Wooden or Metallic) for Hand knotted and Tibetan, Shaggy, Soumak etc.



Weavers enjoying the comfort while working in CBHL

- **India Knot:** A proprietary one of IICT which permits semi knotting in loom, a supplement to Make in India Mission - Industry to come forward & Explore



- **Snehabha Carpet Backing System:** Polymer Backing Technology, Light weight, Washable Reported it's features & feasibility in publications like carpet e world



■ Carpcost Software

A Piracy proof software has been developed and ready for use on CD for cost calculation of hand knotted carpet . from Rs. 25000/- to support the industry.



3. Research & Development (R&D).

IICT PORTFOLIO

Continuous Tufting Frame

Suitable for Tufted Carpet

It is a manual tufting process using a hand operated or electric tufting Gun for continuous design repeats for large length of carpet.

It has features such as

- Comfortable working environment with ergonomic design of frame.
- Primary Backing Cloth is supplied Continuously from a roller.
- Spike chain for guiding backing cloth with width expanding device.
- Lengthwise stretching of backing cloth by turning cloth roller through hand wheel.
- Simultaneous design printing using tracing paper or alternate use of block printing.
- simultaneous Latex backing with secondary net.
- Hot air solar inverter drying system (optional).
- Carpet winding roller with capacity up to 200 feet length.
- Superior quality of carpet production at nearly 200 sq inch per hour per weavers.



MECHANISED DHURRIE LOOM

Suitable for Floual Design Dhurrie Weaving

Features of the machines

It is an improved design of vertical dhurrie loom for Hand made carpet weaving.

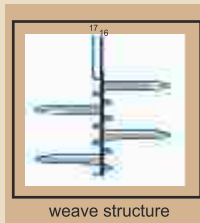
- Arrangement for winding bobbins from hank.
- Arrangement for warping larger length within a comfortable room environment.
- Weaving width in multiple of tree feet with Mechanical jacquard for designing.
- Uniform end spacing and accurate width adjustment
- Full width panja for uniform beat up
- Larger winding capacity on carpet roller.
- Ergonomic design relieving weavers from fatigue.



LENO CARPET LOOM

Suitable for Pile Carpet

It is a broad loom producing pile carpet with leno structure for better tuft withdrawal force. Vertical colour stripes, horizontal row of cuts or loops, embossing or printing after weaving produce designs on leno carpets. The technique is for hand made carpet and aims to revive the hand made carpet sector in India.



weave structure



JACQUARD CARPET LOOM

Suitable for Pile Carpet

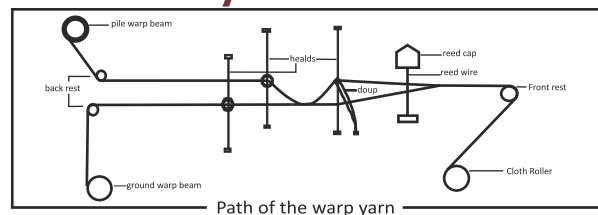


Features

- It is a development of hand loom for floral pile carpet designs.
- Suitable for 2,3,4 or 5 colour designed pile carpets on loop/cut structure .
- Piles are formed by insertion wires in pile warp shed controlled by a mechanical jacquard.
- 200 Creel capacity for each colour pile yarn.
- Cotton warp from beam are controlled by heald shaft.
- Foot pedals operated Shedding for jacquard and heald shaft.
- Hand operated shuttle picking for weft insertion.
- Designed for 36 inch width for 6 piles per inch across carpet, suitable for 3-4 Nm woolen pile yarn.
- Manual card cutting using cutting plate produce endless designs.
- Various thickness wires ranging from 1/4 - 3/4 inch produce pile for different quality of woven carpet.
- The technique is handicraft in nature meant for small weavers in remote villages.

Development of woven carpet sturcture

Terry Leno Pile Structure



Features

- Carpet prepared on handloom.
- This special handloom has both technology of terry and leno.
- The carpet produced with terry-leno technology has high tuft withdrawal force.
- Cut pile and loop pile both type of carpets can be prepared.

CONTINUOUS TUFTING FRAME (CTF) FOR CARPET

DESIGNED & DEVELOPED
BY
INDIAN INSTITUTE OF CARPET TECHNOLOGY
CHAURI ROAD,
INDRA MILL CHAURAHA,
BHADOHI - 221401 (U.P)

Features of the machines

It is a manual tufting process using a hand operated or electric tufting gun for continuous repeat of design on a large length.

It has following Features

1. Continuous supply of primary backing clothe
2. Simultaneous tracing of design.
3. Alternate use of block printing For design
4. Latex backing and hot air drying
5. Continuous winding of upto 200 Feet carpet length
6. Optional solar inverter system.



Machine Parts:

- 1 - Design printing zone
- 2 - Spiked conveyer chain
- 3 - Primary cloth roller
- 4 - Tension device
- 5 - drying zone
- 6 - Carpet roller
- 7 - hood
- 8 - blower
- 9 - tracing paper take up roller
- 10 - Top guide roller
- 11 - Tufting Zone
- 12 - Cloth expander
- 13 - Bottom guide rollers
- 14 - pressure roller
- 15 - spring shocker

Patent No.
437254

1. Design tracing



2. Tufting



Stages of Carpet Making

3. Secondary backing with Latex



4. Drying

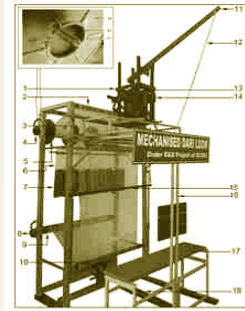


MECHANISED DHURRIE LOOM

Designed & Developed
by
Indian Institute of
Carpet Technology
Chauri Road,
Indra Mill Chauraha,
Bhadohi - 221401 (U.P)

Features of the machines
It is a improved design of Hand made vertical dhurrie loom with following features

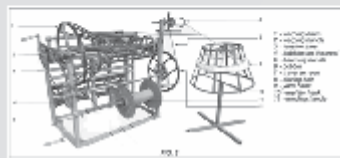
- Arrangement for winding bobbins from hank.
- Arrangement for warping larger length within a comfortable room environment.
- Mechanical jacquard for every two feet width for endless designing capacity
- flexibility to increase width in multiple of two feet width
- uniform end spacing and accurate width adjustment
- full width panja for uniform beat up
- larger winding capacity on carpet roller.
- Ergonomic design relieving weavers from fatigue.



Machine Parts:

- 1- jacquard machine
- 2- top guide roller
- 3- warp spreader
- 4- warp let off ratchet
- 5- section beams
- 6- jacquard harness
- 7- lingoe weights
- 8- take up ratchet
- 9- carpet roller
- 10- guide roller
- 11- Jacquard drive lever
- 12- connecting cord
- 13- knives
- 14 - Pattern cylinder
- 15 - Full width Panja, beat up
- 16- casing
- 17- weaver seat
- 18 - foot pedal
- 19 - beam flanges
- 20- beam ruffle
- 21- key way

Warp preparation

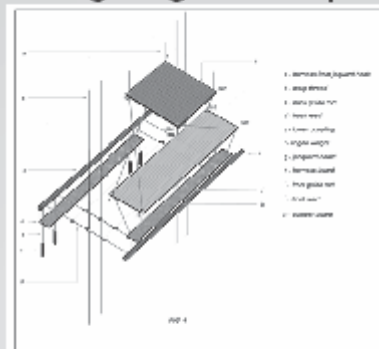


Features

It has an to wind bobbins from yarn hanks and also section beams are prepared from these bobbins.

- Creel hold twenty four bobbins (25)
- Section of twenty four ends wound on Drum
- All section of equal length equal to warp length
- Uniform spacing of ends
- Accurate width of warp.
- All warp under uniform tension
- Small machine accommodated in a room can produce large length and width of warp.

Designing technique



A 12x25 = 300 hook jacquard controls ends up to two feet width of carpet having 1.2 EPI.

Drawing in plan:

EPI	Total ends	Hook's drawn.
4	96	1,4,7,10
6	144	1,3,5,7,9,11
8	192	1,2,4,5,7,8,10,13
10	240	1,2,3,4,5,7,8,9,10,13
12	288	all



Spreader Device for accurate warp width adjustment on the loom.



Panja Beat-up for full width well beat up

4. Technical Support to the Industry (TSI).**IICT PORTFOLIO**

Name of Beneficiary for testing 1 April 2022 to 31st March 2023

- | | |
|----------------------------------------------------|-----------------------------------|
| 1. ABC Industries | 43. Floorex |
| 2. ADA, Bhadohi | 44. Floorina Rugs |
| 3. Adnan Traders | 45. Friday Rugs |
| 4. Agnee Innovates Pvt. Ltd. | 46. Garvee International |
| 5. Ahamad Rugs, Mirzapur | 47. Gaurav Industries |
| 6. Ahmdabad Colour Company, Bhadohi | 48. Hafiza Art & Crafts Pvt. Ltd. |
| 7. Alauddin Exports | 49. Hasida & sons |
| 8. Ali Carpets | 50. Hmah Rugs |
| 9. Ambadi Enterprises | 51. Indian Art Gallery |
| 10. Amceebee | 52. Indian Looms |
| 11. Amirian Brothers | 53. Indian Rugs Collection |
| 12. Amit Traders | 54. Indo American Rugs |
| 13. Anisa Carpets, Gurgaon | 55. J & V Rugs Pvt Ltd., Patiala |
| 14. Anjani Carpets | 56. J.R. Exports, Varanasi |
| 15. Ansari Rug Bazar | 57. Jahan Rugs |
| 16. Arcedior International Pvt. Ltd. | 58. Jaipur Rugs co. Pvt Ltd |
| 17. Archana Export | 59. Jamila Arts |
| 18. Art Palace | 60. Javi, Haryana |
| 19. Art Palace Export Pvt Ltd. | 61. K B Rugs |
| 20. Artex | 62. K.W. Carpet Company |
| 21. Arvind Exports | 63. Kailash Rug industries |
| 22. Asian Exports | 64. Karwan Yarn Pvt. Ltd |
| 23. Assistant Commissioner vanijya Kar,
Bhadohi | 65. Kas Carpet Yarn Dyers |
| 24. Ayub Rugs | 66. Kay International |
| 25. Bhadohi Art Gallery | 67. Kerman International |
| 26. Bhadohi Carpets | 68. Khanna Carpet Collection |
| 27. Bhadohi Carpets | 69. Kritika Creations |
| 28. Brijlax Exports ,Varanasi | 70. Kumar Enterprises |
| 29. Capital Carpet Company | 71. Lavkush International |
| 30. Carpet International | 72. M Y S Rugs & Home LLP |
| 31. Champo Carpets | 73. M.A. Trading co. |
| 32. Chandan Carpets | 74. Mahajan carpets, Varanasi |
| 33. Classic Custom Rugs, Nepal | 75. Mahesh Carpets, Varanasi |
| 34. CSTRI, Bangaluru | 76. Mamb Woolens |
| 35. D.M., Bhadohi | 77. Maqsood Rugs |
| 36. D.S. Yarn Traders | 78. Marudhar Fashions |
| 37. Deepak Rugs | 79. Mattex |
| 38. Deepak Rugs | 80. Maurya International |
| 39. Designers desire | 81. Maya Traders |
| 40. Dr. Saudamini Mohapatra, Bangaluru | 82. MDK Textile Industries |
| 41. Dream Rugs Creations | 83. Meraki Designs |
| 42. Evergreen Carpet | 84. Mundra brothers |
| | 85. Naksh Enterprises |

4. Technical Support to the Industry (TSI).

IICT PORTFOLIO

Name of Beneficiary for testing 1 April 2022 to 31st March 2023

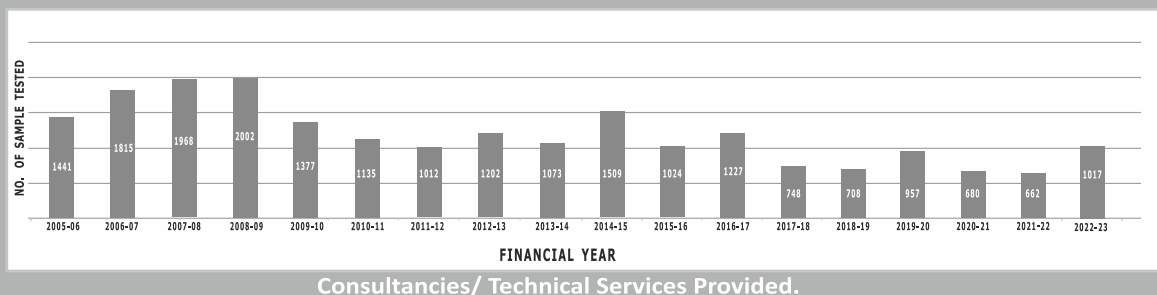
- | | |
|-------------------------------|-----------------------------------------|
| 86. Namrata Exports, Varanasi | 117. Rugs & Home |
| 87. Nisar Rugs | 118. Rugs Mart |
| 88. Nuzrat Carpet Imporium | 119. Rupesh Kumar & sons |
| 89. NXG Creations, Mirzapur | 120. Sabir Creations |
| 90. OAC Woollens | 121. Saif carpet |
| 91. Om Teppich Exports | 122. Samd Hadi Exports |
| 92. Opee Carpet Corporation | 123. Sanjay Kumar & Pankaj Kumar |
| 93. OPUS, Bhadohi | 124. Santosh Singh, Varanasi |
| 94. Orient Carpets | 125. Shadab carpets |
| 95. Orient carpets, Bhadohi | 126. Shamsi Collections |
| 96. Orient Palace | 127. Shimnan Rugs |
| 97. Parvej Carpet | 128. Shri Sai Interational |
| 98. Pathak Carpet | 129. Splendid carpet Emporium, Mirzapur |
| 99. Patodia Exports | 130. Sundeep, Mirzapur |
| 100. Peesons Pvt Ltd. | 131. Sunshine Rugs |
| 101. Pihue Creations | 132. Surya carpet Pvt. Ltd. |
| 102. Pinnacle Carpet Pvt Ltd. | 133. Tasveera Carpet |
| 103. Polydyes | 134. Tasveera Carpets |
| 104. Posh Collections | 135. Textico |
| 105. R.M.C. Collections | 136. The Elegant Rugs |
| 106. Raj Carpets, Bhadohi | 137. The Merge Project, Mumbai |
| 107. Raj Dyers | 138. Triloki Carpets |
| 108. Ramesh carpet Company | 139. Tulsiram Gayaprasad Pvt. Ltd. |
| 109. Ramish International | 140. Tushar Banthia |
| 110. Rare Rugs Production | 141. United Creation India |
| 111. Ravi Rugs Pvt. Ltd. | 142. Vayda Overseas, Panipat |
| 112. Rishi Rugs Pvt. Ltd. | 143. Wahid International |
| 113. Rudra Rugs | 144. Widelinks inc, Varanasi |
| 114. Rug Boutique | 145. Winsome Globle |
| 115. Rug Meseum | 146. Zayn & Zara |
| 116. Rug Texture LLP | 147. Zoha Floor Coverings |



IICT Laboratory

Institute has been providing continuous technical services to the industry through its laboratory sample testing facilities in the disciplines of mechanical & chemical. It helps to fulfill the needs of carpet exporters to compete with the global market. These laboratories are NABL accredited, hence test reports are acceptable internationally. Carpet Industry has utilized the available testing facilities to confirm the quality requirements of international and national buyers. A total of **1017** samples have been tested by IICT laboratory, generating a total revenue of Rs. **10,44,862/-** during the financial year 2022-23. Industry can hire services of various IICT portfolios for consultation to enhance their business performance.

4. Technical Support to the Industry (TSI)



List of Kaleen Bandhu Members (as on date 31.03.2023)

- | | |
|-----------------------------------------------|------------------------------------------|
| 1. M/s. Bholanath International, Varanasi | 10.M/s. Jaipur Rugs Co. Pvt. Ltd.,Jaipur |
| 2. M/s. Sahara Kasturi Handicraft Ltd., Lko | 11.M/s. Patodia Exports, Bhadohi |
| 3. M/s. Jaya Shree Textiles, Rishra | 12.M/s Antique Art Export (P) Ltd. Noida |
| 4. M/s. TAG BROS, New Delhi | 13.M/s Samara Carpets Pvt Ltd. |
| 5. M/s. ABC Industries, Mirzapur | 14.M/s Velocity Yarn Pvt. Ltd. |
| 6. M/s. Peerless Carpet Palace, Bhadohi | 15.M/s Champo Carpets.Bhadohi |
| 7. M/s. GSL Textile India Pvt. Ltd., Ludhiana | 16.M/s Colourtech Industries Pvt. Ltd. |
| 8. M/s. Concept Creations, Panipat | 17.M/s Zoha floor Coverings |
| 9. M/s. Gloster Jute Mills Ltd., Kolkata | |

Note: 1 to 13 & 15 are life members.

❖ "KALEEN BANDHU"- a forum created to invite eligible & interested organizations /individuals to become a member of IICT. One can become a Life member or Associate Member on payment of Rs. 50000/- or Rs.4000/- respectively.

Placement drive is an integral part of our institute as it endows the opportunities to the students to get employment in the well-known and esteemed organizations. The institute started its recruitment process for the year in 2022-23 in the month of September. On Campus recruiters includes RSWM Kharigram Rajasthan, Welspun Anjar, Welspun Vapi, Vardhman Ludhiana, Dodhia Synthetics Vapi, Creative Yarn Vapi, OSWAL Ludhiana, JAIN CARPETS AGRA, Donear Vapi etc. Few students opted for higher education in premier institutes like IIT Delhi & NITIE Mumbai.

Placement updates of IICT outgoing students in the academic year 2022-2023

A. Industry placement Name of Industry/ No. of Students	B. Higher Education/Self Employment
Number of students opted for placement : 29 Placed : 29	Higher Education : 03
1 RSWM Kharigram Rajasthan 7 2 Welspun Anjar 4 4 Welspun Vapi 3 5 Vardhman Ludhiana 1 6 Dodhia Synthetics Vapi 5 7 Creative Yarn Vapi 3 8 OSWAL Ludhiana 2 9 JAIN CARPETS AGRA 1 10 Donear Vapi 1 11 Jaipur Rugs 2	IIT Delhi..... 2 NITIE Mumbai..... 1
29+3=32/52	20 remaining (5 UPSC and 15 COP)

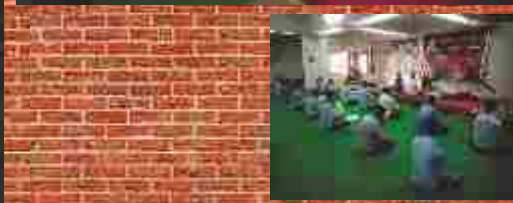
Blood donation at Institute



Plantation Day



INTERNATIONAL YOGA DAY



Many eminent personalities visited the institute during 2022-23, and enlightened the faculty, staff members and students.

Date	Name & Address of visitor	Comment
9/04/2022	Mr. Deepak Mehra + Mr. Ekta Jain + Lukesh + Dhanyu	We are really impressed to see the facility + lab and wish this will grow further. Thank you
26/01/2022	Dr. Ketan Reddy King's College London	An Exceptional institute that is driven towards providing excellent teaching to its students + work towards the development of the artisans + workers of Bharat. We were given very insightful information and each thing was explained in detail by D. Jana. Very thankful to the institute, director + DJana for their willingness + excellent tour + insights into carpet industry. 26/01/22
12.08.22.	G.S. Bhati ED, CNDB	This institute have wonderful facility of testing and workshop. It has learning experience to have first hand view view on carpet processes. Being Collaborative partners of Wood. board, we are hopeful that our combined efforts would lead to further development in wood sector. G.S. Bhati Institute

Many eminent personalities visited the institute during 2022-23, and enlightened the faculty, staff members and students.

Date	Name & Address of visitor	Comment
9/09/2022	Mr. Bobby Singh 8299876994 Vanita Institute of Fashion & Design Lahurabati, Varanasi Principal Maham -- 8853978662	It's a great opportunity to visit this Institute. All the facilities are wonderful and very up-to-date and All the labors are well equipped. Thank you Singh 9/09/2022
29/11/2022	Khusboo Anand, Anshika Bahl, Shankar Suman plus 430 students - Vanita Public School, Lahurabati, Varanasi. M.No. - 8299832548	IICT have very nice facility of various tools regarding carpet, textile and it was a great opportunity to visit this Institute. With many new things to learn & explore with new instruments. All the staff supported & helped in gaining with new knowledge. Your University is very beautiful and Thank you for interesting lecture. Very nice & interesting! We will never forget!
14/02/2023	Madina Prasolova, OJSP-K Company, Russia	
16/02/23	Barat Lal Singh, SANC o/o - Deputy Director of Textile, Bargarh (Odisha) cell. 9937752686	Exposure visit of Handloom weaving cluster + 2nd zone This is first of its kind for the sector of Bargarh dist. This will be a great learning need technique of weaving - Singh 16/3/23