

भारतीय
handicrafts
हस्तशिल्प
continuing tradition



शांतमनु, भा.प्र.से.
विकास आयुक्त (हस्तशिल्प)

Shantmanu, I.A.S.
Development Commissioner (Handicrafts)



भारत सरकार
वस्त्र मंत्रालय
पश्चिमी खण्ड-7, रामाकृष्णापुरम्,
नई दिल्ली-110 066

Government of India
Ministry of Textiles
West Block-7, R.K. Puram,
New Delhi-110 066

Message from the Desk of Chairman

I am pleased to present the annual report of IICT for the year 2021-22.

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

The institute is also involved in various important projects like LED based solar light distribution and Loom distribution to the trained artisans/weavers to create human resource for the carpet industry.

The institute is also playing a vital role in providing service in all portfolios in efficient, reliable and professional manner as evident from continued accreditation of IICT labs from NABL and of B. Tech course from Textile Institute (Manchester). This has strengthened the academic repute of IICT. Accreditation of B. Tech course by NBA is under process and I hope IICT will continue such certification.

Furthermore, I am glad to know that work of laboratory upgradation of testing labs of IICT to international level is likely to complete shortly which will certainly benefit the carpet exporters to a great extent.

As a chairman of IICT, I commit myself to leave no stone unturned for all round development of the 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.


(Shantmanu, IAS)

DC (Handicrafts) & Chairman, IICT





सोहन कुमार झा (आई.ओ.एफ.एस.)
Sohan Kr. Jha (I.O.F.S.)



वरिष्ठ निदेशक (हस्तशिल्प)
कार्यालय विकास आयुक्त (हस्तशिल्प)
वस्त्र मंत्रालय, भारत सरकार,
पश्चिमी खण्ड-७, रामाकृष्णापुरम,
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. : 26163085
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 2021-22.

It is also a matter of proud that stakeholders have explored the utilization of its portfolios gainfully.

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

The IICT has put commendable efforts in conducting quality education and various training program 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 also wish IICT to continue to excel for becoming International Center of Learning.

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



निदेशक
भारतीय कालीन प्रौद्योगिकी संस्थान
विकास आयुक्त (हस्तशिल्प),
वस्त्र मंत्रालय भारत सरकार के अधीन
अ.क.प्राविधिक विश्वविद्यालय द्वारा संबद्ध एवं
आभातशिप, भारत सरकार द्वारा अनुमोदित

Director,
Indian Institute of Carpet Technology
Under the aegis of the
Development Commissioner (Handicrafts),
Ministry of Textiles, Govt. of India
Affiliated with A. K. Technical University
& Approved by AICTE, Govt. of India



वीरेन्द्र कुमार, निदेशक
Virendra Kumar, Director

Message.....



Message from The Desk of Director, IICT

It gives me great pleasure in presenting the Annual Report of IICT, Bhadohi for the year 2021-22. Despite the challenges, the Institute has been committed towards holistic development of the students enabling them to acquire the competency and excel in assignments. With excellent infrastructure, dedicated faculty and by offering effective mentoring and focused attention on every individual student, the Institute has been able to maintain high level of performance in its all four portfolios i.e Human Resource Development (HRD), Design Creation Development (DCD), Research Development (R&D) and Technical Support Service to Industry (TSI). The Institute, with innovations in carpet design, upgraded testing facilities and cutting-edge research, is continuously offering quality services among stakeholders of Carpet Industry. Upgradation of existing Lab and setting up of new eco lab is in progress which will further add to the competitive advantage of carpet manufacturers and exporters.

I am sure, IICT will continuously endeavor to serve the Carpet and Textile Industry and become Centre of Excellence in all the Portfolios mentioned above.

The Institute has received incessant support from Development Commissioner (Handicrafts) Chairman IICT, EC Members, AKTU, AICTE, District Authorities, Carpet Manufacturers Associations, Exporters and other stakeholders. I am indeed thankful to all.

Virendra Kumar,
Director IICT



Indian Institute of Carpet Technology, popularly known as IICT, has been set up by 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 by Ministry of Textiles, Govt. of India 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. B. Tech. programme of the institute is approved by AICTE, New Delhi & 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, Museum and 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 bore well. Institute has also obtained 16.5 acre 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

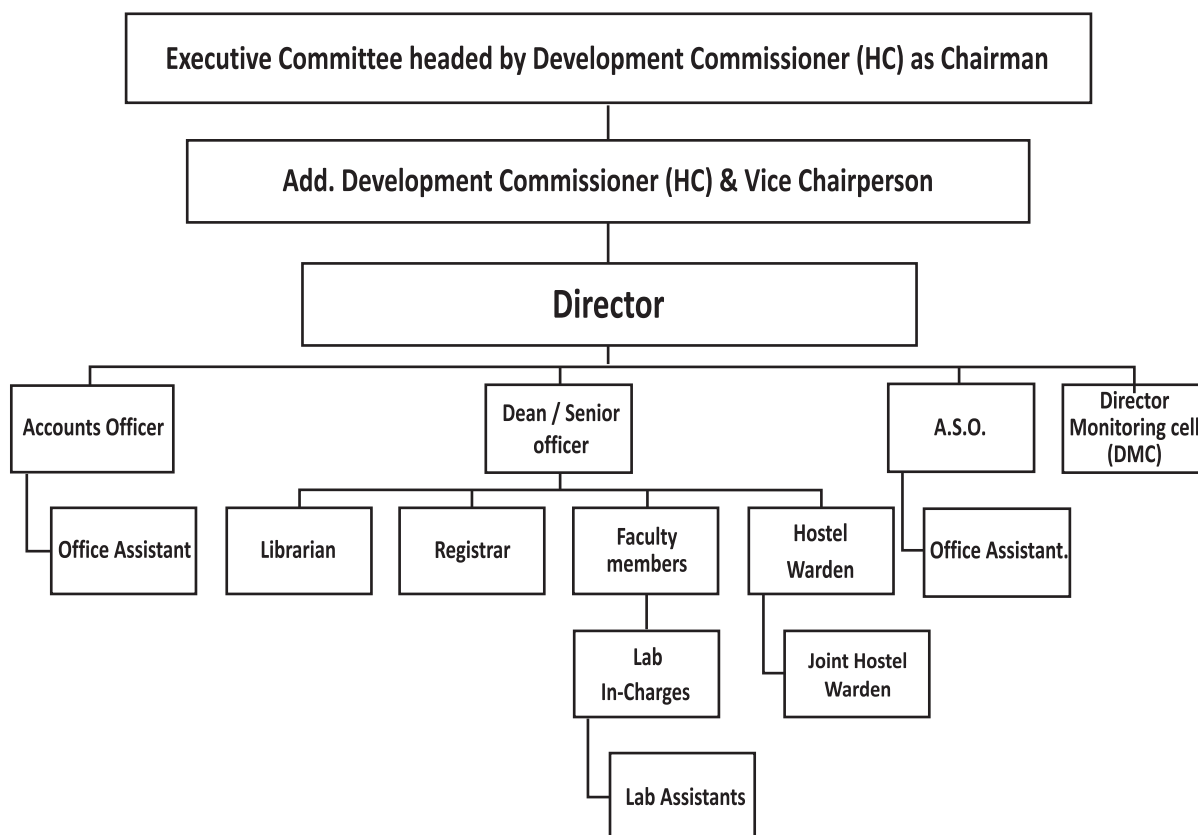
- To be a Centre of Excellence in Carpet, Textiles and relevant areas of technical education by promoting, aiding and fostering the development of the sector.

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 their anticipated requirements of stakeholders.
 - To render timely and satisfactory services in all portfolios to the Industry and all other stakeholders.
 - 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 (HC), 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 nominee.
4. Director (Finance), Min. of Textiles, Govt. of India, Udyog Bhawan, New Delhi or his 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.
9. ED, National Centre for Design (NDC) (Set up by Ministry of Textiles, GOI), Hall No.1 (3rd Floor), Rajiv Gandhi Handicrafts Bhawan, Baba Kharak Singh Marg, Connaught Place, New Delhi-110 001.
10. Head of the Department, Dept. of Textile Technology, Indian Institute of Technology, Hauz Khas, New Delhi.
11. Prof. S.P.Borkar, Dean (Administration), Textile Manufactures Department, VITI, Matunga, Mumbai
12. Dr. Rajesh Kumar, Professor, Structural Engineering Division, Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi- 221005, U.P., INDIA
13. Chairman, AICTE, New Delhi or his nominee
14. Vice Chancellor, Dr. APJ AKTU, Lucknow or his nominee
15. Mr. Y.K.Roy, M/s Kaka Overseas Ltd, Hariaon, Gyanpur Road, Bhadohi-221 401,
16. Sr. Faculty/Dean/Registrar, IICT- Director's Nominee.
17. Prof. Alok Kumar, Director, IICT, Bhadohi-Member Secretary
18. Sr. AD/AD, O/o Development Commissioner (Handicrafts), West Block No. 7, R. K. Puram, New Delhi.

Executive Committee Meeting & Annual General Meeting held during the year

ECM	ECM
65 th EC meeting dated 13.12.2021 on Zoom App	66 th EC meeting dated 16.03.2022 at New Delhi

Overall Strength as on 31st March 2022

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

Faculty achievements

Dr. R K Malik

1. Lecture delivered in ATAL FDP of AICTE
Topic -**Eco-friendly processing methods in wool** Date - 4th June 2021
2. West Wing Germany Lecture: **General Production Flow in Indian Carpet Industry** on
9 th December 2021
3. **Sustainable rugs Organic wool, recycled cotton, Recycled polyester as pile yarn**
on 10 th December 2021

Dr. Betty Dasgupta

1. Coordinator in project AICTE training and learning academy (ATAL)FDP titled "Recent developments in Sustainable Processes" sponsored by AICTE, New Delhi, 31st May to 4th June 2021. 200 students from 24 states across India participated in the 5 days FDP conducted virtually at IICT Bhadohi. Grant received- Rs 93000/
2. Coordinator in course on Carpet Manufacturing to 6 German nationals from West Wing Germany (6 hours) . Delivered a lecture on Natural and Synthetic latex and types of pile yarn used in carpets. Grant received- Rs 18000/
3. S.K.Gupta and B.Dasgupta, performance of hand tufted woolen carpets, Journal of the Institutions of Engineers (India), <https://doi.org/10.1007/s40034-021-00221-5>

Dr. Himansu Shekhar Mohapatra

1. Himansu Shekhar Mohapatra and Dipankar Jana, study the effect of Intensity of light on pile height in terms of time and dye concentration in the hand tufted carpet, Textile Trends, January, 2022.
2. Himansu Shekhar Mohapatra, optimization of solvent and level of twist for texturing of silk filament, Indian Journal of Natural Fibre, Vol.7, No2, January 2021, Page 16-23.
3. Himansu Shekhar Mohapatra, Development of Fibrous assembly from waste of citrus peels, its antioxidant and antibacterial activity, Indian Journal of Natural Fibre, Vol.6, No1, July 2019, Page 49-54.

Dr. Atanu Manna

1. Attended 'International Conference of Young Mathematicians; Institute of Mathematics, NAS Ukraine, June 3-5 2021
2. Successfully completed 'AICTE -NITTTE' course 8 modules in session 2020-21.
3. Become a member of 'American Math Society' and a life member of 'Indian Math Soc.'

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)



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 APJ Abdul Kalam Technical University, (AKTU) Lucknow. Accreditation to Textile Institute, Manchester, U.K. IICT has been awarded twice Star performing institute of the University.

735 students have graduated till date from institute and placed all over India & 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 below table :-

University topper 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 maqsood
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 Financial year 2021 - 22, 35 students of 18th batch (2018-22) passed B.Tech exam & placed successfully, and during financial year 2021-22, 35 students of 18th Batch (2018-22) passed B.Tech exam & placed successfully, and

In 7th Sem. 35 students appeared in exam.

In 5th Sem. 55 students promoted to fourth year (6th sem.)

In 3rd Sem. 67 students promoted to third year (4th sem.)

and 31 students are freshly admitted in 1st year

Admission to B. Tech. 1st year

Intake in B. Tech. programme is 66. (+extra 03 seat EWS & 03 seat TFW) For this, admission is done through JoSAA / CSAB/ UPSEE. Out of which 31 candidates had taken admission from the said allotment.

Tuition Fee

The Fee structure is Approved by SGM, which is as below :-

B. Tech. Fee structure

Newly admitted B. Tech. 1 st year & 2nd year Lateral Entry, 2nd year, 3rd year, 4th year		
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	30000/-	-----
Total	1,31,000/-	86,000/-

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

Commencement of the Session :

The new session commenced from 10th Sep. 2021 for the B. Tech. VII- Semester classes and B. Tech III & V Semester classes started from 12th Sep. 2021.

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 3500 designs have been utilized by industry for commercial purpose. 114 designs have been created under design bank.

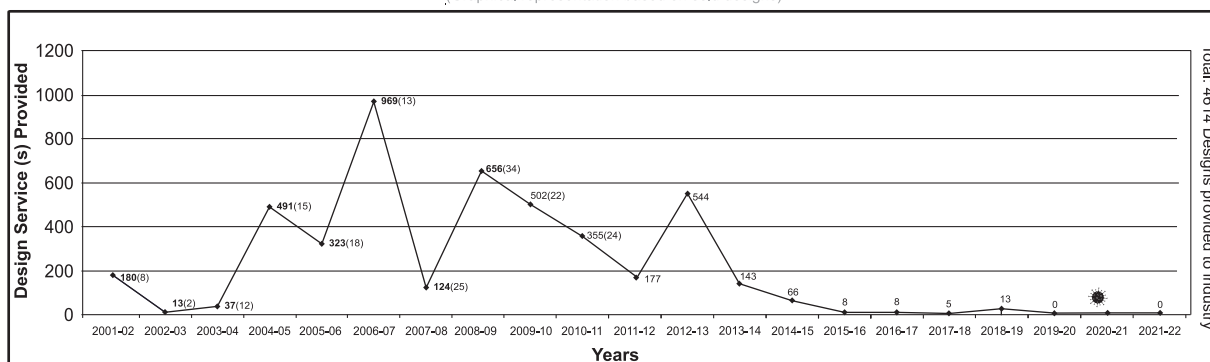
The Design Bank includes Traditional INDIAN Motifs (Like : Harappa, Ajanta, Mughal, Rangoli, Jaipuri, Fulkari, Kantha, Paithani, Kalamkari, Banarasi, Jamewar etc.), modern motifs etc. as per trend.

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.

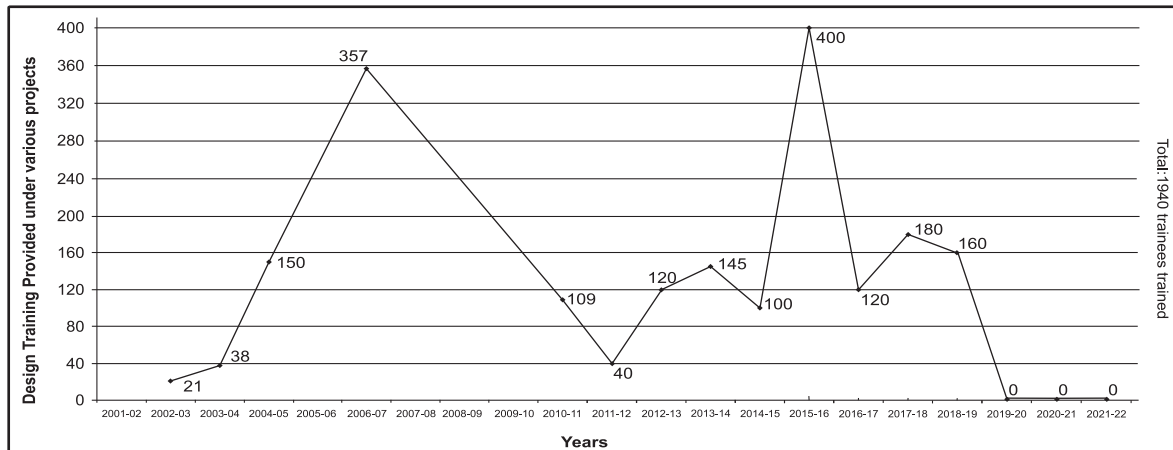
Design Lab Services

(Graphical representation based on sold designs)



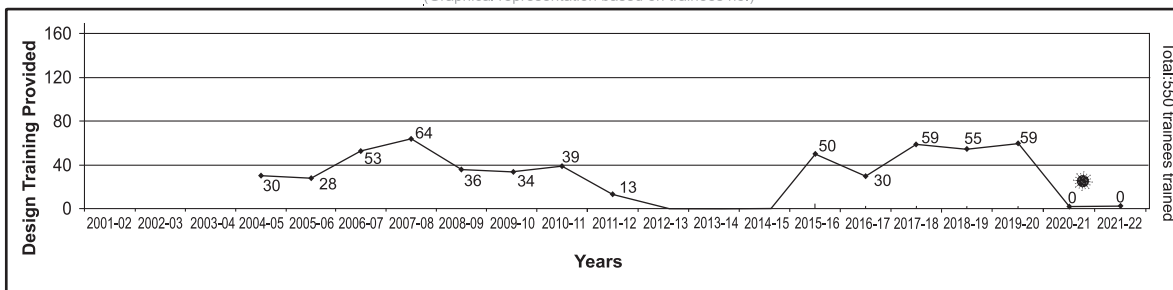
Trainees trained under various projects through Design Lab

(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 weaved 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.

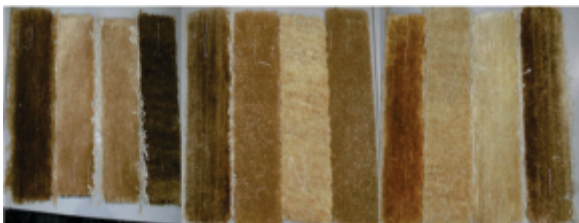
- **Fabrication and Evaluation of Heating Pad from Waste Carpet**

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 Ωm , 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.

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 Floral Design Dhurrie Weaving

Features of the machines

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

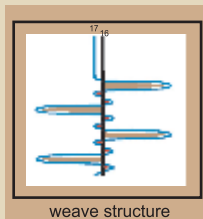
- Arrangement for winding bobbins from hank.
- Arrangement for warping larger length within a comfortable room environment.
- Weaving width in multiple of tree feet with Mechanical jacquard for designing.
- Uniform end spacing and accurate width adjustment
- Full width panja for uniform beat up
- Larger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



JACQUARD CARPET LOOM

Suitable for Pile Carpet

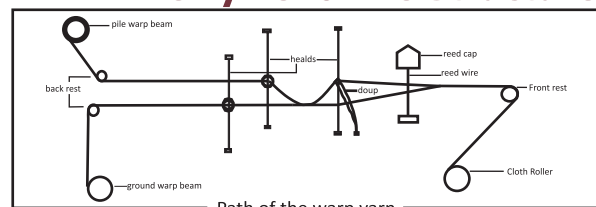


Features

- 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 structure

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.

4. Technical Support to the Industry (TSI).**IICT PORTFOLIO****Name of Beneficiary for testing 1 April 2021 to 31st March 2022**

1. M/s. VSK Rugs, Bhadohi
2. M/s. Patodia Exports., Bhadohi
3. M/s. Namrata Exports, Varanasi
4. M/s. Paliram Laxmi Narain, Mirzapur
5. M/s. Ultimax Goods Pvt. Ltd., Varanasi
6. M/s. Ivory Carpets, Bhadohi
7. M/s. Mahesh Carpets, Varanasi
8. M/s. Ansari Handicrafts, Bhadohi
9. M/s. Karnataka cooperative Non Khadi Woollen Handloom Weavers Federation Ltd, Chitradurga
10. M/s. Chandan Carpets, Bhadohi
11. M/s. Rizwan Rugs, Khamaria, Bhadohi
12. M/s. Neman Carpets, Mirzapur
13. M/s. Javed Rugs, Bhadohi
14. M/s. Concept creation group, Panipat, Haryana
15. M/s. Wahid International, Bhadohi
16. M/s. Bhadohi Carpets, Bhadohi
17. M/s. Orient Palace, Civil Lines, Bhadohi
18. M/s. Bholanath Carpet Limited, Varanasi
19. M/s. Prakash Dyeing Centre, Khamaria, Bhadohi
20. M/s. Shalabh Carpets, Mirzapur
21. M/s. Kay International, Bhadohi
22. M/s. Indian Art Gallery, Bhadohi
23. M/s. Carpet International, Bhadohi
24. M/s. Rupesh Kumar & Sons, Bhadohi
25. M/s. International Carpet Project, Bhadohi
26. M/s. Bhadohi International, Bhadohi
27. M/s. Jahan Rugs, Bhadohi
28. M/s. Magic Box Marketing, Pvt. Ltd.
29. M/s. Shyam Ahuja (P) Ltd., Bhadohi
30. M/s. Varanasi Carpets, Bhadohi
31. M/s. Momina Rugs, Bhadohi
32. M/s. RE-Trend Rugs, Bhadohi
33. M/s. Artex, Bhadohi
34. M/s. Waziri India, Bhadohi
35. M/s. Jaipur Rugs, Bhadohi
36. M/s. Dream Rugs Creation, Bhadohi
37. M/s. Dignity Rugs Pvt. Ltd.,
38. M/s. Eastern Mills Pvt. Ltd.
39. M/s. Textico, Bhadohi
40. M/s. Mamb Woollens Ltd., Bhadohi
41. M/s. Hands Rugs Exports, Bhadohi
42. M/s. Tulsiram Rugs, Bhadohi
43. M/s. Dodhia Rugs, Bhadohi
44. M/s. OAC Woollen Pvt. Ltd.
45. M/s. KAS Carpet Yarn Dyers, Bhadohi
46. M/s. Rug Arts, Bhadohi
47. M/s. Khanna Carpet Collection, Bhadohi
48. M/s. Ambadi Enterprises Ltd, Bhadohi
49. M/s. Village Weavers, Mirzapur
50. M/s. Sai Trade Solutions, Bhadohi
51. M/s. Prabha Color Co. Bhadohi
52. M/s. Agni, Bhadohi
53. M/s. Akshay Mundra, Bhadohi
54. M/s. Vardhman Export, Mirzapur
55. M/s. Designer's Desire, Bhadohi
56. M/s. Jamila Rugs India, Bhadohi
57. M/s. Carpet Zone India, Bhadohi
58. M/s. Design Accent, New Delhi
59. M/s. B.R. Woollen Mills, Bhadohi
60. M/s. Kabir Carpet International, Mirzapur
61. M/s. Loom Rugs co., Bhadohi
63. M/s. Zoha Floorcoverings, Bhadohi
64. M/s. Star Overseas, Bhadohi
65. M/s. Apex Art Gallery, Bhadohi
66. M/s. Kapoor Carpets, Bhadohi
67. M/s. Jamila Rugs, Bhadohi
68. M/s. PMG Commerce Edge Limited, Bhadohi
69. M/s. Parwaze Carpet, Bhadohi
70. M/s. Marino carpets, Bhadohi
71. M/s. Rugs Mart, Bhadohi
72. M/s. Indian looms, Bhadohi
73. M/s. Wilton Weavers, Kerala
74. M/s. Classic Rugs, Bhadohi
75. M/s. Morco Industries, Bhadohi
76. M/s. Floorex, Bhadohi
77. M/s. Fashion Carpet Co., Bhadohi
78. M/s. Vishal Carpet, Bhadohi
79. M/s. Maurya international, Bhadohi
80. M/s. Studio Naif, Bhadohi
81. M/s. Coronation Rug centre, Jaunpur
82. M/s. Harish International, Bhadohi
83. M/s. Hussain International, Bhadohi
84. M/s. Rug Village, Bhadohi
85. M/s. Kumar Enterprises, Bhadohi
86. M/s. Carpet Land India, Bhadohi
87. M/s. B.B.N. Exports, Bhadohi
88. M/s. S.S. Handicrafts, Bhadohi
89. M/s. Aditya Carpets, Bhadohi
90. M/s. Ajay Carpets, Bhadohi

4. Technical Support to the Industry (TSI).

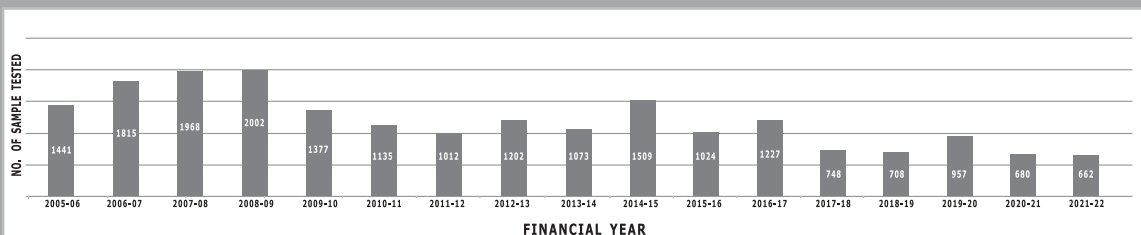
IICT PORTFOLIO

- | | |
|---|---|
| 91. M/s. Deepak Rugs, Bhadohi | 105. M/s. Salam India, Bhadohi |
| 92. M/s. Nice Rugs, Bhadohi | 106. M/s. Sharda Traders, Bhadohi |
| 93. M/s. Eastern Inc., Bhadohi | 107. M/s. Raheem & Sons, Bhadohi |
| 94. M/s. Anu Tufts International, Bhadohi | 108. M/s. Vayda Overseas, Panipat, Haryana |
| 95. M/s. United Creation India, Bhadohi | 109. M/s. Weaver's Hut, Bhadohi |
| 96. M/s. Amit Carpet Industries, Bhadohi | 110. M/s. Bhagirathi Enterprises, Bhadohi |
| 97. M/s. Pankaj Textiles, Bhadohi | 111. M/s. K.W. Carpet Co., Bhadohi |
| 98. M/s. Posh Collection, Bhadohi | 112. M/s. Tuesday Rugs, Bhadohi |
| 99. M/s. Shreya Carpets, Bhadohi | 113. M/s. Mabood International, Bhadohi |
| 100. M/s. Floorina Rugs, Bhadohi | 114. M/s. Agni Innovatives Pvt. Ltd., Bhadohi |
| 101. M/s. BSB Carpets, Varanasi | 115. M/s. Shadab Carpets, Bhadohi |
| 102. M/s. Sterlings Rugs, Bhadohi | 116. M/s. The B Company, Bhadohi |
| 103. M/s. Karwan Yarns Pvt. Ltd., Bhadohi | 117. M/s. Anisa Carpets, Gurgaon, Haryana |
| 104. M/s. Wool Arts, Bhadohi | 118. M/s. Adil Carpet Company, Bhadohi |

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 **662** samples have been tested by IICT laboratory, Generating a total revenue of Rs. **7,78,059/-** during the financial year 2021-22, Industry can hire IICT for consultation to enhance their business performance.

4. Technical Support to the Industry (TSI)



Consultancies/ Technical Services Provided.

List of Kaleen Bandhu Members (as on date 31.03.2022)

- | | |
|---|--|
| 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. Kaka Carpets, Bhadohi |
| 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.

Details of Projects at IICT (Govt. Sponsored)

Utilization
Certificate
has been
submitted
but
reimbursement
is still
awaited.

Placement drives 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 2021-22 in the month of September. On campus recruiters includes WELSPUN VAPI, RSWM BHILWARA, IIT ROORKEE, INDIA POST, ACHAL AMIT AGRA, BV NOIDA, K A R W A SPINNING PANIPAT, SPORT KING, GANGA DESIGN, WRA, VARDHMAN, RAJESH CARPETS BHADOHI, GIMATEX NAGPUR, SAIF CARPETS, SAINSBURRY GURGAON etc.

Placement updates of IICT outgoing students in the academic year 2021-2022

A. Industry placement Name of Industry/ No. of Students	B. Higher Education/Self Employment
Number of students opted for placement : 24 Placement : 22 Higher Education : 02	
WELSPUN VAPI :2 RSWM BHILWARA :5 INDIA POST :1 ACHAL AMIT AGRA :1 BV NOIDA :1 KARWA SPINNING PANIPAT :1 SPORTKING :1 GANGA DESIGN :1 WRA :1 VARDHMAN :1 RAJESH CARPETS BHADOHI :2 GIMATEX NAGPUR :1 SAIF CARPETS :2 SAINSBURRY GURGAON :1 BIKANER CARPETS- :1	IIT Roorkee..... 2



Ramesh Bhanu Pratap Singh Verma, Hon'ble Minister of State, Ministry of Micro, Small & Medium Enterprises, Govt. of India visited IICT on 18.09.2021

Many eminent personalities visited the institute during 2021-22. and enlightened the faculty, staff members and students.

Date	Name & Address of visitor	Comment
29/7/21	Neeraj Kumar Anya DFO Bhadohi	IIC T is doing very good job for encouraging women and the Best for future. <i>Neeraj</i>
30.7.21	Ajay Kumar Hemav DFO Bhadohi	It is a matter of great pride that Bhadohi boasts of its own method of Carpet Technology. amazed to see the intricacies of technology behind carpet manufacturing. My best wishes for all future endeavors of IIC T. <i>Ajay</i>
18.08.21	PRABHAKAR TRIPATHY DIG, CRPF -AMETHI	Visited Indian Institute of Carpet Technology today. It's an abode of art-infusion working very efficiently under able guidance of Sh. Alok Kumar, Director. faculties are very knowledgable. I wish them my best wishes. <i>P. Tripathy</i>
18/9/21	भानु प्रताप सिंह वमि Minister of State, MSME Gov. of India 9452385477-PS 9415055465	1.1.0.1 आप आप में एक कर्मिण रखता है जो जो creation है उसमें उसको का रखता है। जिसका मैं सभी कर्मिणों, D.O. जो प्रकट लगी प्रकटों को प्रकटमाना है कि वे इसी प्रकार राजभा के अक्षर गिजान व लगी प्रकटों के द्वारा कर रहे हैं। <i>Bhishm</i> 18.9.2021

Date	Name & Address of visitor	Comment
02/12/2021	Nasser Najam New Delhi 110015	It has been a great pleasure and honour to have a chance to visit the IICT - Block, Mr. Datta, and given a wonderful view of the institute and has been a great guide to show us around all the facilities that the institute has. I feel a great sense of honour to be able to visit the institute which is one of the kind not just in India but in the world. Thanks to Prof. Dr. Kumar for the chance. Thanks to the team at IICT and all the best for the future. Kind regards Nasser Najam
15/12/2021	RK Bhardwaj, D.G. Raje, Mirzapur	It is a pleasure to visit India's only premier institute in Carpet Technology. The visit was a learning experience. I wish best for the future. RK Bhardwaj
22/12/21	Dr. Ashwari Pandey, 50m Bhadohi	I am very grateful to you in that you provide me the opportunity to come this prestigious institution. My best wishes are always with this institution. 22/12/21 Ashwari Pandey
23/12/21	Nidhi Khare Additional Secretary, Dept. of Consumer Affairs.	I am extremely grateful to the organization that took great pride in showing me its activities. The students were full of enthusiasm and so were the faculty. Best wishes & keep innovating! 23/12/21 Nidhi Khare
28/01/2022	Dr. Rajesh Kumar Pandey DSC, Bhadohi (lect. DPT Agartala Bhadohi) 98522785	It is great pleasure to visit IICT with several students of DPT and it is great venture of learning and teaching as a unit. I am thankful for this work. RK Pandey

Date	Name & Address of visitor	Comment
18/2/21	Assistant Prof. Sachin Jain (Kashi Institute of Technology) Mob. 8317048031	it is really great experience to visit in IITK. the every person meet with us very helpful in solution, very connecting by heart. del. are thanking in you. to give it the New visit for IITK. <i>[Signature]</i> 18/2/21
23/02/2022	Dr. Mohan Lal Yadav IAS Gleason Observer, Bhadoi	The Institute is well maintained. Staff is excellent in in-depth knowledge. <i>[Signature]</i> 23/02/2022