D.K.T.E. SOCIETY'S

TEXTILE & ENGINEERING INSTITUTE

ICHALKARANJI

Department of Textile

Textimes

2024

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News Letter

Institute Corner

Launch of New Textile Engineering Program

B.Tech (Technical Textiles)

◆ **B.Tech Technical Textiles**

The National Technical Textiles Mission (NTTM) is an initiative by the Ministry of Textiles, Government of India, aimed at promoting the growth and development of the technical textiles sector in India. Launched in 2020, the mission focuses on research, innovation, market development, and the promotion of technical textiles across various sectors like agriculture, healthcare, infrastructure, and defense. The mission is structured around four main components: research and innovation, market development, export promotion, and education and training.

DKTE, undertaking the NTTM mission, started an Undergraduate programme of 4 years in Technical Textiles. DKTE is also equipped with Centre of Excellence in Nonwovens and Focused incubation center in Coating & Lamination with funding of 30 crore supported by Ministry of Textiles, Government of India.

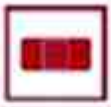
The Course with NEP syllabus covers the various subjects such as Material science, Textile fibers, Organic chemistry, Introduction to technical textiles, Yarn manufacturing technology, Fabric manufacturing technology, High performance fibre, Fibre & yarn testing, Nonwoven technology, Fibre reinforced composite, Standards and testing methods for technical textiles, Quality control and certification processes, Pretreatment & coloration of textiles, Advance functional finishing, Coating & lamination, Nano & smart materials, Utility engineering, Biopolymers & medical textiles, Protective & defense textiles, Industrial textiles, Application of technical textiles in 12 sectors etc.

Technical textiles are defined as textile materials and products used primarily for their technical performance and functional properties rather than their aesthetic or decorative characteristics. This is one of the fastest-growing sectors of the Textile Industry, which is manufacturing high-tech, high-performance fabric designed not just to look attractive, but to present a significant added value in terms of functionality.

◆ Classification of Technical Textiles

Technical textiles can be divided into 12 categories, depending on their end-use as shown in the following table.

Companies providing placement to the UG students in R&D and product development are Reliance Industries Ltd, Alok Industries Ltd, Arvind, Supreme Group, SRF, Bombay Dyeing, Vardhman, Ahlstrom, Garware, Dupont, 3M, P&G, Gohnson & Ghonson, Kimberly Clark, Welspun India , Saint Gobain, Khosala Profil, Trident Group etc.

	**Agrotech** Horticulture + landscape gardening, agriculture + forestry, animal keeping		**Meditech** Hygiene, medicine
	**Buildtech** Membrane, lightweight + massive construction, engineering + industrial building		**Mobiltech** Cars, ships, aircraft, trains, space travel
	**Clothtech** Garments, shoes		**Oekotech** Environmental protection, recycling, waste disposal
	**Geotech** Road infrastructure, Railways, Irrigation and Hydraulic structures, Waste Landfills, Dams etc.		**Packtech** Packaging, protective-cover systems, sacks, big bags, container systems
	**Hometech** Furniture, upholstery + interior furnishing, rugs, floor coverings		**Protech** Person and property protection
	**Indutech** Filtration, cleaning, mechanical engineering, chemical industry		**Sporttech** Sport and leisure, active wear, outdoor, sport articles.

Programs Organised

◆ The Inaugural Function of TAIMU Student Chapter 2023-24

The Inaugural Function of TAIMU student chapter 2023-24 took place on 29th of August, 2023. The event was a remarkable convergence of esteemed individuals and inspiring alumni. The program was held in the presence of Mr. J.P Bhalshankar, Principal, and Prof. Abhijeet Ghagare, Rajapur High School & Gode-Date Arts Commerce and Science Jr College, Rajapur. The audience was also privileged to hear from Mr. Ankush Kamble, a successful alumnus of the Textile Department, who was then an entrepreneur working on his venture "Innovtex-Fashion" shared his inspiring journey with the students and motivated them towards innovation and entrepreneurship. Mr. Darshan Khatod was selected as the President, TAIMU student chapter for the year 23-24. All the newly elected members were felicitated by the guests. The proceedings continued with addresses from Prof. Dr U.J. Patil, HOD, Textile Department, and Prof. S.S. Lavate, Secretary, TAIMU. Prof. R.H. Deshpande coordinated the event.

◆ Textile Week Programme

To foster the interest among the students about textiles used in routine, the Department of Textiles & TAIMU students chapter organized a novel event, Textile Week. The students & staff of the Textile Department celebrated every day with attire like Formal, Checks, Floral clothing, Sustainable clothing, etc. I/C. Director of the institute. Prof Dr. L S Admuthe, inaugurated the event. Prof Dr. U J Patil, Deputy Director, and HOD of Textile Department motivated the students on this occasion.

◆ One-day workshop for the entrepreneurs on "Supply Chain Management in Textiles"

DKTE's Textile & Engineering Institute, Department of Textiles, Institution Innovation Council (IIC) of DKTE, and Idea Lab of DKTE jointly organized a one-day workshop for entrepreneurs on "Supply Chain Management in Textiles" on August 18th, 2023. This workshop was coordinated by Prof. (Dr.) U. J. Patil, Deputy Director of the institute.

Programs Organised

◆ Seminar on "Campus to Corporate"

Our Institute, in association with Textile Association of India-Ichalkaranji Miraj Unit, organized a Seminar on "Campus to Corporate" for Third and Final year Fashion Technology Students on 12th October 2023. The seminar was initiated with lighting of the lamp. The gathering was welcomed by Dy. Director and Head of Textile Department, Prof. Dr. U. J. Patil. The Chief Guest for the seminar was Dr. Arun Gaikwad, Principal, Professor, and Head of B. N. Sarda Science college, Sangamner, who guided the students on the topic role of Fashion education, the importance of internships, and continuous learning. He shared success stories of successful fashion designers. Mr. Bhushan Khadake, an alumnus of our Textile Department and Quality Assurance Manager at Ken Enterprises, Ichalkaranji, guided the students in order to become future corporate champions and shared his experiences in the field of the garment industry. The seminar proved helpful for students in understanding the challenges they face when entering the corporate world. The programme was successfully executed under the guidance of I/C. Director, Prof. Dr. L. S. Admuthe. Course Co-Ordinator, Prof. Dr. V. K. Dhange, and faculty members were present during the seminar. The session was anchored, and a vote of thanks was expressed by Prof. (Dr). A. A. Raybagi.

◆ A Seminar on "Digital Tools to Promote Capital Goods Sector"

A Seminar on "Digital Tools to Promote Capital Goods Sector" was conducted jointly by the Indian Textile Accessories and Machinery Manufacturers Association (ITAMMA) & Ministry of Heavy Industry (MHI) with the support of Textile Association India Ichalkaranji - Miraj Unit (TAIMU) & DKTE'S Textile & Engineering Institute, Ichalkaranji. The chief guest and speaker, Mr. N.D.Mhatre, Director General Tech (ITAMMA), delivered a presentation on "Awareness of the capital goods sector and government initiatives". Ms. Neeti M, Director of Mercury web, guided the students about "Modern marketing skills and social media for business growth". Mr. Deelip Bhogawale, Executive Director, Sambuq.com India Pvt Ltd, shared detailed information about the objectives of Sambuq. An introductory speech was given by Hon. Treasurer TAIMU, Prof. Dr. A.A.Raybagi. Prof. Dr. S.S.Lavate, Hon. Secretary, delivered the welcome speech. The speakers were felicitated at the hands of Hon. Vice Chairman, TAIMU Prof.Dr.S.B.Mhetre. More than 100 students and faculty members were present for the seminar. The program was moderated by Anand Mall and Meet Chopra. The program was coordinated by Darshan Khatod (President of TAIMU) and TAIMU student chapter members under the guidance of Director Prof.Dr.L.S.Admuthe and Deputy Director Prof.Dr.U.J.Patil.

Programs organised

One-Day session on 'Design of Experiment'

The Institute Innovation Council, supported by the Ministry of Education, Government of India, organized several activities aimed at fostering an innovation ecosystem for the benefit of the students. Among these initiatives, the Institutions Innovation Council (IIC) of our institute, in collaboration with the Textile Department, conducted a one-day session on 'Design of Experiment' on 20th and 21st October 2023 from 10:30 am to 5:30 pm. The session was led by Prof. A. P. Modgekar, HOD of the Department of Textiles at SASMIRA, Mumbai, and targeted Final Year B. Tech. Textile Chemistry and Fashion Technology students as part of a self-driven activity. During the session, emphasis was placed on the Selection of Final Year Projects based on industry-related problems and recent research areas. Prof. A. P. Modgekar elucidated various statistical tools for designing experiments and introduced the application of Minitab Software for experiment design and test result analysis. Approximately 100 students engaged in interactive discussions with the expert, seeking clarification on various concepts. The program was coordinated by
Dr. S.M. Landage & Mr. M. S. Kulkarni, IIC Ambassadors, while Dr. U. J. Patil, Head of the Textile Department, provided support to ensure the smooth conduct of the session.

Participation In Exhibitions

- **Great India Textile Show**

Our institute participated as an exhibitor at the 'Great India Textile Show' - Textile Machineries, Spares Parts, Digital printing, Boiler, Yarn, Fabric & Allied Products Exhibition held at Pancharatna Sanskritik Bhawan, Station Road, Ichalkaranji from 1st to 4th September 2023, organized by ESSENTIAL (Essential Events & Trade Fairs). Many technocrats, students, alumni, and visitors paid a visit to the DKTE stall.

Visits to Industry

◆ **Third Year Textile Technology Students**

KTE Institutes Innovation council of Textile Department organized a one-day field visit to composite industries in Kagal MIDC area. 63 students of Textile Technology and 3 faculty members joined the study tour. In the morning, an interaction with Grasim Industries Ltd, Grasim premium fabrics, Kagal, was planned. They addressed the students and emphasized the importance of safety measures in industries along with supply chain management. In the afternoon, Raymond Luxury Cottons Ltd., Kagal, hosted the industry round and engaged in interactions with senior professionals. Specialty fabrics and their production machines were observed. The visit was coordinated by Dr. Manjunath Burji, Prof. S.V.Kamble, Prof. Mandar S.Kulkarni, Innovation Ambassadors, and The Lab. Asstt. Mr. Kiran Magdum. I/C Director, Prof. (Dr.) Mrs. L.S. Admuthe, and Head of Textile Department, Prof. (Dr) U.J. Patil, supported and guided for the smooth conduct of the visit.

◆ **Third Year Fashion Technology Students**

Third Year students of Fashion Technology were on an Industrial Tour in Bangalore from 2nd Nov. 2023 to 5th Dec 2023.

They visited the following organizations:
- Central Silk Board
- Shahi Exports Pvt. Ltd.
- Laguna Clothing Pvt. Ltd.
- Silver Spark Apparel Limited
- TÜV Rheinland (India) Pvt. Ltd.

This visit was coordinated by Prof. (Dr) V. K. Dhange & Prof. P. M. Yadav under the guidance of I/C. Director, Prof. Dr. L. S. Admuthe and Dy. Director & HOD, Prof (Dr).U. J. Patil.

Visits to Institute

◆ Visit of delegates from the Department of Handlooms and Textiles of the State Government of Karnataka

A delegation from the Department of Handlooms and Textiles of the State Government of Karnataka visited our institute. Shri. N T Negaloor, Joint Director, Shri. V D Doddamani, Deputy Director, Shri H B Patil, Deputy Director, and Shri Satish Kapsi, Assistant Director, visited various laboratories of the textile department and interacted with faculties.

◆ Visit of delegates from AOTS, Mumbai

On 7th September 2023, delegates from AOTS, Mumbai, including Mr. Pravin Purav, President, Mr. Shashikant Sharma, Secretary, and Mr. Vilas Thube, Executive Member visited DKTE. AOTS, established on August 10, 1959, is an organization aimed at promoting technical cooperation in developing countries. It facilitates human resources development through training, expert dispatch, and other programs to foster mutual economic development and friendly relations between Japan and other nations. The delegates toured DKTE's facilities, from the library to various departments, workshops, and laboratories, and were impressed by the institute' s infrastructure and academic environment. A meeting was arranged with career guidance cell coordinators from different departments, attended by the director, deputy director, and In-charge of the Career Guidance Cell, Dr. J M Patil. They discussed various aspects of higher education in Japan, study tours to Japan, the Japanese language center at DKTE, as well as job placements and internships in Japan. Prof. Rajanna Gotipamul served as the coordinator for this visit.

MoUs Signed

- **MoU between DKTE'S Textile and Engineering Institute (DKTE) and The Yarn Bazaar (TYB)**

DKTE'S Textile and Engineering Institute (DKTE) and The Yarn Bazaar (TYB) had signed a Memorandum of Understanding (Mo U), which outlined collaboration between the two organizations. The MoU was signed by Prof. Dr. Mrs. L. S. Admuthe, I/C Director of DKTE, and Mr. Pratik Gadia, Founder and CEO of TYB, in the presence of Prof. Dr. Mrs. S. U. Awade, Honorary Secretary of DKTE Society. Prof. Dr. U J Patil, Deputy Director and HOD Textiles, Prof. Dr. S. B. Mhetre, Prof. Dr.V. K. Dhange, Mr. S. B. Akiwate, Training and Placement Officer - Textiles, had attended this function. This MoU outlined the scope of the expected collaboration between the two organizations. Under this MoU, TYB was to provide textile students full support for winter and summer internships, as well as support for carrying out market surveys of various textile clusters.

Parents Meet of Third Year B.Tech (Textiles)

- **Third Year Parents Meet**

The Department of Textiles has organized the parents' meet of Third Year B.Tech.(Textiles) on 20/10/2023. Large number of parents attended the meet. Dr.S. B. Mhetre welcomed the parents for the meet. Dr.S.B.Vhanbatte, Dean, R&D, delivered a presentation on "Opportunities in higher studies". Prof. S.B. Akiwate, Training & Placement Officer, presented the placement scenario of Textiles. Some of the parents expressed their views about the institute and appreciated the efforts taken by the department for the development of the students. Dy. Director of the Institute & Head of Textile Department Prof. (Dr.) U. J. Patil addressed the parents along with the presentation of SWOT analysis of students and also highlighted the various measures undertaken by the institute for the progress of the students. Students selected for Pre-Placement Offer (PPO) were felicitated at the hands of the dignitaries. Dr.Y. M. Indi expressed the vote of thanks.

Faculty Corner

Achievements

Paper Presentations

◆ **Prof. Dr. Mrs. A. A. Raybagi**

Prof. Dr. Mrs. A. A. Raybagi presented a paper in First International Conference- Indo-Japan Textile Research Conference, organized by IIT Delhi and Shinshu University, Japan on 27 - 28th November 2023 at Department of Textile and Fiber Engineering, Indian Institute of Technology Delhi. Her Topic of presentation was "Studies on wicking of fabrics with air jet textured yarns".

◆ **Prof. V. B. Chougule**

Prof. V. B Chougule presented apaper at INTERNATIONAL CONFERENE ON RECENT ADVANCES IN APPLIED SCIENCES & ENGINEERING (RAISE 2023), which was held on 12-13 April 2023 at MSU Baroda. His topic of presentation was "Assessment of Shape Factor of Trilobal and Solid Polyester Staple Fiber Using SEM Cross-Sectional Image and Publicly Available Software". This paper was accepted by reviewers of the scientific committee of RAISE 2023, MSU Baroda. The full paper was also published with ISBN: 978-81-962938-1-9 Entitled as "Proceedings of International Conference RAISE 2023:Vol. IV Mechanical Engineering, Metallurgical & Materials Engineering, Textile Engineering

◆ **Prof. V. B. Chougule**

Prof. V. B. Chougule presented a paper at SCOPUS Indexed 3rd International Conference Emerging trends in Traditional and Technical textiles, (ICETT) which was held at NIT Jalandhar; his Topic of presentation was "Effect of hollow and solid polyester staple fibers on trash obstruction efficiency and related properties of calendared and non-calendared needle punched nonwovens".

Faculty Development Courses

◆ **Prof. Dr. Prakash B. Malakane**

Prof. Dr. Prakash B. Malakane has successfully completed a 12-week NPTEL Course titled "Technical Textiles" from 24 July 2023 to 13 October 2023. This course targeted the specific areas of technical textiles depending on the product characteristics, functional requirements and end-use applications.

◆ **Prof. Ramchandra P. Sawant**

Prof. Ramchandra P. Sawant has successfully completed a 12-week NPTEL Course titled "Yarn Manufacture I: Principle of Opening, Carding and Drawing" from 24 July 2023 to October 2023. This course targeted the basic concepts of blow room, carding and draw frame. This course also targets the basic calculations involved in these departments.

◆ **Prof. V. B. Chougule**

Prof. Vardhaman B. Chougule from Department of Textiles has successfully completed Two 12-week NPTEL Courses titled " Yarn Manufacture I: Principle of Opening, Carding and Drawing" and "Technical Textile" from 24 July 2023 to 13 October 2023. These courses are intended to investigate fundamentals in yarn manufacturing and various application areas of Technical Textiles, catering to the interest of both students and faculty members.

Special Achievements

◆ **Dr. Mrs. A. A. Raybagi has Worked as Technical Officer Incharge for ATA and GMTA Examinations organized by Textile Association of India Ichalkaranji Miraj Unit, December 2023.**

Papers Published

1. S. V. Chavan published a paper on "Synthetic Thickeners in Reactive Dye Printing on Cotton and Viscose rayon" in Asian Textile Journal, August- September 2023

2. Dr. Landage S.M. published a paper on "Waterproof Breathable Coating on Textiles" in Man Made Textiles in India, July-2023

3. Deshmukh S. B. published a paper on "Exploring Contemporary Advancements and Outlook in Viologen-Based Aqueous Organic Redox Flow Batteries: A Mini Review" in Energy and Fuels, November-2023

4. Dr. Gudiyawar M. Y published a paper on "Silica aerogel in textiles and nanofibers: a comprehensive review of synthesis techniques and embedding strategies" in The Journal of The Textile Institute, October-2023

5. Dr. Timble N B published a paper on "Investment and schemes for technical textiles" in Technical textile value chain, July-September 2023

6. Dr. Jawale S. N. published a paper on "Tensile and surface properties of ring, compact and hybrid double yarns" in Asian Textile Journal, August-September 2023

7. Dr. Raybagi A.A. published a paper on "A Review on Aqua silk: The Lotus Fibre Revolution" " in Asian Textile Journal, December- 2023

8. Dr. Raybagi A.A. published a paper on "Smart Goals in Textile Industry" in Asian Textile Journal, August-September 2023

9. Dr. R. N. Narkhedkar published a paper on "Process Management: A Modern approach for the process of spinning Industry" in Spinning Textile, September -October 2023

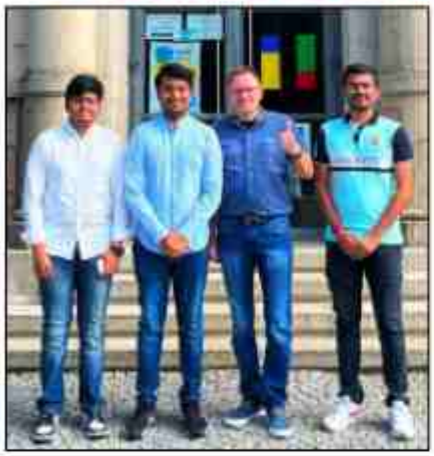
10. Dr. S. R. Kamat published a paper on "Eco-Friendly Vat Dyeing with Electrochemical Reduction" in Asian Dyer, July-23

11. Purohit R.N. published a paper on "SMART goals in the textile industry" in Asian Textile Journal, August- September 2023

12. Dr. Raybagi A.A. published a paper on "Development of Textiles in Ramayana" in Journal of Textile Association, Nov. Dec. 2023

Student Corner

Students Semester Exchange at International level



◆ Credits Transfer Scheme

DKTE students Mr. Sumedh Murabatte, Mr. Rajvardhan Kadam and Mr. Abhishek Somani of T.Y B. Tech. (Textiles) pursued their sixth semester from March 2023 at Hof University of Applied Sciences Germany as exchange students under credits transfer scheme. These students of T. Y B. Tech (Textiles) were selected by Hof University of Applied Sciences Germany to study their 6 th semester at Hof University under credits transfer scheme. The credits transfer scheme is one of the activities of the MOU signed between our institute and Hof University, Germany. These students have completed their sixth semester in July 2023 and after successfully completing the 6th semester their credits were transferred and students have joined 7th semester at DKTE.

◆ Credits Transfer Scheme

DKTE students Parshati Bhagwat, Vaishnavi Bade and Kedar Khot from T. Y. B. Tech (Textiles) have successfully completed their 6th semester at Saxion university of Applied Sciences Netherlands as students exchange programme under credit transfer scheme as a part of MoU between DKTE and Saxion university of Applied Sciences, Netherlands. The credit transfer scheme is one of the activities of the MoU signed between DKTE and Saxion University, Netherlands. These students have attended a complete semester from February 2023 to July 2023 at Saxion University and after successfully completing the 6th semester, their credits were transferred to our institute and students have joined their 7th semester at DKTE

◆ Student Exchange Programme

Mr. Joseph Soj of B.Tech (Textile Technology) was selected to pursue higher studies, under "student exchange programme" at Hof University of Applied Sciences Germany, as part of the collaboration activities between DKTE and Hof University of Applied Sciences Germany.

◆ Master's Degree Admission at International level

Mr. Rushikesh Murale of B.Tech (Textile Plant Engineering) was selected by Hof University of Applied Sciences, Germany to study Masters Programme MS in Sustainable Textiles. The program Master's in Sustainable Textiles is emerging field in textiles and students will be exposed to recent developments taking place in the area of sustainability and Textile Technology/Engineering. This selection of students for higher studies is one of the aspects of MoU between DKTE and Hof University of Applied Sciences, Germany.

Alumni Corner

◆ Dr. Amit Jadhav

Dr. Amit Jadhav, a 2002 DTM and 2005 B. Text Technology graduate of our institute, has become a prominent figure in the global textile engineering industry.

Dr. Amit holds a PhD degree from RMIT University, Australia and MSc degree from University of Leeds, UK. He was awarded the prestigious Endeavour Scholarship and British Chevening Scholarship for his PhD and Master studies respectively.

Dr. Amit is an experienced Material Scientist with a demonstrated history of working on Advanced Textile Materials for more than 18 years. He is passionate about the development of new products through design, concepts, and their translation from research to industrial platforms. He has extensive research experience in the development of high-performance textile materials such as Soft Body Armour, Fire Fighters Uniform, Medical Textiles, Nanocoating of Textiles, Automotive Textiles, Sportswear.

He worked with many renowned companies such as Vardhman Textiles, Rieter India, Youngor Ltd (China) and RMIT's Advanced Material Research Centre (Australia). Currently, He is working as a Lead Textile Engineer in Textile Centre of Excellence at ResMed Ltd (Singapore). Here, Dr. Amit leads a technology driven projects creating innovative, high-performance medical textiles that are commercially viable.

Dr. Amit is the pioneer of the technical paper presentations for DKTE. He presented almost 22 papers at various textile engineering institutes across India during his studies at DKTE and brought laurels to institute.

Key Achievements:

- Developed a patented laser ablation technology 'Laser Deploy', for removable car seat covers for passenger safety. • Co-inventor for many patented products and technologies in medical devices.
- Published several influential papers in many international journals.
- RMIT University's Research Excellence Team Award- 2015
- Endeavour Postgraduate Scholarship-2010, Australian Govt.
- Shell Centenary- FCO Chevenning Scholarship-2007/08 for Master Studies.
- International Student Exchange Program-2005 organized by IWTO, Brussels.
- GOLD MEDAL awarded by NDRF (India) in All India Student Project Competition-2005
- SILVER MEDAL awarded by NDRF (India) in All India Student Project Competition-2004.

Message to Current Students:

"Stay curious and be persistent. The field of textile engineering is full of opportunities to make a real difference in the world. Embrace challenges and seek out innovative solutions. Your work has the potential to shape the future of the industry."

Stay Connected:

Dr. Amit enjoys connecting with fellow alumni and students. You can reach him on LinkedIn.

LinkedIn QR code.

Technical Artical

EXTRACORPOREAL DEVICES: A BOON TO MANKIND

Anand Mall
3rd Year B.Tech Textile Technology

Textiles and medical science have gone hand in hand since ages, with the use of cotton bandage as a wound covering. As smart textiles are emerging, their usage in medical fields has increased exponentially due to their safety and efficient characteristics. One such usage is the use of extra corporeal devices. These devices support the patient from outside and are not implanted inside the body. Extra corporeal devices like artificial kidney, artificial lever and artificial lungs have one common function of filtration. The membranes used in such devices are 100% technical textile products made up of polysulfone and polyacetate.Different fibers are used in different device membranes depending on the size of waste to be filtered.

ARTIFICIAL KIDNEY

The function of the artificial kidney is achieved by circulating the blood through a membrane, which may be either a flat sheet or a bundle of hollow regenerated cellulose fibers like hollow viscose or hollow polyester fiber in the form of cellophane that retain the unwanted waste materials. These are multi layered fabrics made with needle punching technology for effective waste removal. The main advantage of membranes is that it balances important minerals like potassium, sodium and calcium. Also these filters have high durability, good capillary rise, good absorbency and inert nature.

ARTIFICIAL LUNGS

The microfibers or the membrane oxygenator are the technical textile component in this device. The microporous membranes of the mechanical lung possess high permeability to gasses but low permeability to liquids and functions in the same manner as the natural lung, allowing oxygen to come into contact with the patient's blood. These membranes are made up of knitted high performance fibers with high strength and good bio compatibility.The main advantage of usage of technical textile membrane in this device are-

1. Enhanced Gas Exchange Efficiency
2. Reduced Blood Flow Resistance
3. Compact and Lightweight Design
4. Better Flexibility and Adaptability

ARTIFICIAL LIVER

The artificial liver utilizes hollow fibers or membranes of viscose similar to those used for the artificial kidney to perform their function. In this system, a patient's blood or plasma is pumped into bioreactors, which are hollow fiber devices which act like the liver to transform a human hepatoma cell line.Modern artificial livers using hollow viscose fibers provide several advantages like-

1. High Surface Area
2. Effective Solute Removal
3. Biocompatibility
4. Cost-Effectiveness
5. Enhanced Fluid Flow

CONCLUSION

Technical textiles are more and more developing into interdisciplinary high-tech products with interesting changes in the market. Medical textiles are a crucial subcategory of technical textiles, spanning products from disposable items like diapers and sanitary pads to advanced devices such as blood filtration systems, complex organs and prosthetics. Usage of extracorporeal devices have reduced organ straining and improved life expectancy. Their primary function is to meet specific medical needs, requiring interdisciplinary collaboration among polymer scientists, textile engineers, and medical experts. Recent innovations in textile technology—encompassing non-woven, knitted, and woven forms—are increasingly used in medical procedures. The demand for medical textiles has surged over the past 30-40 years and is projected to grow further, especially in developing countries, driven by health awareness and rising incomes. New smart technologies are advancing the development of highly functional and active medical textiles.