Opportunities In Technical Textiles & Nonwovens In India – Role Of DKTE Centre of Excellence In Nonwovens

D.K.T.E. Society’s Textile & Engineering Institute, Ichalkaranji

DKTE Center of Excellence in Nonwovens Promoted by Ministry of Textiles, Govt. of India
D.K.T.E’s
Textile & Engineering Institute
Ichalkaranji, Dist. Kolhapur (Maharashtra) INDIA
# COURSES OF STUDY

## DIPLOMA COURSES (Duration 3 Years)
- Diploma in Textile Manufactures: 1982, 60
- Diploma in Textile Technology: 1995, 30
- Diploma in Fashion & Clothing Technology: 2008, 30

## DEGREE COURSES (Duration 4 Years)
- B. Text. Textile Technology: 1983, 60
- B. Text. Textile Plant Engg.: 1984, 30
- B. Text. Textile Chemistry: 1987, 60
- B. E. Electronics Engineering: 1989, 120
- B. E. Mechanical Engineering: 1992, 120
- B. E. Computer Science & Engineering: 1999, 60
- B. E. Information Technology: 2001, 60
- B. E. Electronics & Tele-Communication Engineering: 2002, 60

## POST-GRADUATE COURSES (Duration 2 Years)
- M. E. Electronics Engineering: 2010, 18
- M. E. Mechanical Engg. (Product Design & Dev.): 2010, 18
- M. E. Computer Science & Engineering: 2014, 18
- M.B.A. (Master of Business Administration): 2008, 60
- M.B.A. Textile (Master of Business Admin. - Textile): 2009, 60

## DOCTORATE (Research Lab)
- Ph.D. - Textile Engineering, Electronics Engineering & Mechanical Engineering
ACIMIT – The Association of Italian Textile Machinery Manufacturers

is pleased to invite you for

Launch Event

of

The Italian Textile Technology Center at DKTE

On Monday, 22rd September 2014 – 9:30 a.m.
At D.K.T.E. Society’s – Textile & Engineering Institute, Ichalkaranji

R.S.V.P
Rare Tech Projects Pvt. Ltd., New Delhi
011-24625680; 41512265;
D.K.T.E Society’s – Textile & Engineering Institute, Ichalkaranji
9422419864

Dress: Formal

Promoting Excellence in Teaching, Learning & Research
COLLABORATIONS WITH FOREIGN UNIVERSITIES

DKTE
Promoting Excellence in Teaching, Learning & Research

Bondage with
14 FOREIGN UNIVERSITIES
OPPORTUNITIES FOR INTERNATIONAL EXPOSURE

Unique
Engineering Education at Palace Paradise

FLYING ABROAD FOR HIGHER EDUCATION

MooD University, Barmay on 3rd July 2015
Technical University of Libera, China Beijing on 26th June 2015

MooD with Foreign Universities

MASTER THE ART OF SUSTAINABLE INNOVATION
• Technical textiles in India is one of the fastest growing industries
• In India Technical Textile sector has registered compounded annual rate of growth of 11% during 11\textsuperscript{th} Five Year Plan and as per the 12\textsuperscript{th} Five Year Plan estimates by the sub-group on technical textiles, technical textile market size is expected to grow at CAGR of 20% and reach Rs. 1,58,540 crore by 2016-17 from the market size of Rs 70,151 Crore in 2012-13.
• The Indian technical textile industry contributes to roughly 12% of Indian textile Industry at present which is very less compared to other developing countries like China where technical textile Industry accounts for around 20% of the textile sector.
• Production capacity is primarily focused on commodity products / not very R&D intensive.
• The technology by and large is traditional. Not many projects are based on state-of-the-art-technology.
• Technical Textile Industry is import intensive - high-end products are mostly imported.
• Large untapped potential exist for potential investors - opportunities for both the production and trading of product/services for domestic consumption.
## MARKET FOR TECHNICAL TEXTILES

### Market summary of technical textiles

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Agrotech</td>
<td>553</td>
<td>826</td>
<td>929</td>
<td>~9%</td>
<td>1,191</td>
</tr>
<tr>
<td>2</td>
<td>Meditech</td>
<td>1,669</td>
<td>3,321</td>
<td>3,622</td>
<td>~14%</td>
<td>4,281</td>
</tr>
<tr>
<td>3</td>
<td>Mobiltech</td>
<td>3,183</td>
<td>6,607</td>
<td>7,370</td>
<td>~14%</td>
<td>9,173</td>
</tr>
<tr>
<td>4</td>
<td>Packtech</td>
<td>14,630</td>
<td>28,020</td>
<td>31,181</td>
<td>~13%</td>
<td>38,733</td>
</tr>
<tr>
<td>5</td>
<td>Sportech</td>
<td>2,851</td>
<td>4,132</td>
<td>4,645</td>
<td>~8%</td>
<td>5,877</td>
</tr>
<tr>
<td>6</td>
<td>Buildtech</td>
<td>1,317</td>
<td>2,514</td>
<td>2,819</td>
<td>~13%</td>
<td>3,577</td>
</tr>
<tr>
<td>7</td>
<td>Clothtech</td>
<td>3,466</td>
<td>4,835</td>
<td>5,357</td>
<td>~8%</td>
<td>6,591</td>
</tr>
<tr>
<td>8</td>
<td>Hometech</td>
<td>4,345</td>
<td>6,249</td>
<td>7,119</td>
<td>~6%</td>
<td>9,274</td>
</tr>
<tr>
<td>9</td>
<td>Protech</td>
<td>1,302</td>
<td>1,988</td>
<td>2,176</td>
<td>~7%</td>
<td>2,722</td>
</tr>
<tr>
<td>10</td>
<td>Geotech</td>
<td>185</td>
<td>683</td>
<td>772</td>
<td>~27%</td>
<td>991</td>
</tr>
<tr>
<td>11</td>
<td>Oekotech</td>
<td>68</td>
<td>120</td>
<td>132</td>
<td>~11%</td>
<td>160</td>
</tr>
<tr>
<td>12</td>
<td>Indutech</td>
<td>3,206</td>
<td>6,625</td>
<td>7,567</td>
<td>~11%</td>
<td>9,929</td>
</tr>
<tr>
<td></td>
<td><strong>Total technical textile market</strong></td>
<td><strong>36,775</strong></td>
<td><strong>65,920</strong></td>
<td><strong>73,688</strong></td>
<td>~11%</td>
<td><strong>92,499</strong></td>
</tr>
</tbody>
</table>

Source: Baseline Survey of Technical Textiles in India -2014-15
Per capita consumption of technical textiles in India

The per capita consumption of technical textiles in India is 1.7 per kg vis-a-vis 10-12 kg in developed countries.

Source: Baseline Survey of Technical Textiles in India -2014-15
Global consumption of Nonwovens

**North America**
Consumption of 2 million tonnes
CAGR: **5.4%** (13-18)

**Europe**
Consumption of 2.1 million tonnes
CAGR: **4.6%** (13-18)

**Asia**
Consumption of 3.6 million tonnes
CAGR: **11.1%** (13-18)

**South America**
Consumption of 0.4 million tonnes
CAGR: **6.2%** (13-18)

**Rest of the world**
Consumption of 0.4 million tonnes
CAGR: **2.4%** (13-18)

Source: Future of Global Nonwoven Market, Smithers Apex 2014
Asia remains the global leader, with a market share of 40.8% and consumption of 3.6 million tonnes.

The annual expected growth rate from 2013-18 is expected to be 11.1%.

<table>
<thead>
<tr>
<th>Type</th>
<th>2008</th>
<th>2014</th>
<th>2018</th>
<th>CAGR (13-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spunlaid</td>
<td>784</td>
<td>1740</td>
<td>2807</td>
<td>13.7%</td>
</tr>
<tr>
<td>Drylaid</td>
<td>1054</td>
<td>1804</td>
<td>2524</td>
<td>9.1%</td>
</tr>
<tr>
<td>Airlaid</td>
<td>79</td>
<td>85</td>
<td>101</td>
<td>3.5%</td>
</tr>
<tr>
<td>Wetlaid</td>
<td>34</td>
<td>48</td>
<td>62</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Source: Future of Global Nonwoven Market, Smithers Apex 2014
Consumption of Nonwovens

**Asia**

- **Disposable nonwovens**
  - Total consumption: 1.2 million tonnes
  - CAGR: 11.7% (2013-18)

- **Durable nonwovens**
  - Total consumption: 2.4 million tonnes
  - CAGR: 10.3% (2013-18)

Source: Future of Global Nonwoven Market, Smithers Apex 2014
In the Indian market, needle punch has the maximum share followed by spunbond technology due to the high demand for nonwovens in automobile, hygiene and geo-textile sectors.

However spunlace technology has the highest growth rate for future with a CAGR of 27%.

Organised Retail is expected to grow at 50% for the next five years, which will be a big boost for products like wipes that make up for more than 60% of spunlace consumption in the world.

Indian Healthcare Industry is growing at 15%.

Growing demand of disposable nonwoven products like gowns, caps, masks etc.

Disposables have huge untapped market in India—which require high quality to be matched with international norms to substitute imports.
THE GROWTH ENABLERS FOR THIS SECTOR

Growing awareness

Buoyant economy – increase in disposable income, retail culture

Increased demand of ‘growth drivers’ of technical textiles

Favourable demographics

Government initiatives
THE GROWTH ENABLERS FOR THIS SECTOR

Growth of Industry Sectors
A large number of technical textile products are consumed by different industries, like automotive, healthcare, infrastructure, oil & petroleum, etc. With increase in investments in industry sectors, higher consumption and growing exports, the industrial sector is poised for considerable growth.

Increasing Per Capita Income of Consumer
While India’s per capita income increased by 11.5% from US$ 969 in 2010-11 to US$ 1,499 in 2013-14, promising economic growth indicate corresponding trends for income growth. Holistic development will encourage higher discretionary spending and technology development.

Increasing adaptability and acceptance of products
Growing awareness about the superior functionality of technical textiles will encourage higher consumption of these products.

Government’s FDI promotion initiatives
To facilitate higher integration of technology into manufacturing processes and end-products, Government of India has allowed up to 100% FDI under automatic route for the technical textiles segment. Resulted in several international technical textile manufacturers, like Ahlstrom, Johnson & Johnson, Du Pont, Procter & Gamble, 3M, SKAPS, Kimberly Clark, Terram, Maccaferri, Strata Geosystems, have initiated operations in India.
The growth enablers for this sector

Investment promotion schemes by Government

Investors establishing technical textile unit in India can avail several benefits from central government schemes:

- Technology Upgradation Fund Scheme (TUFS)
- Scheme for Integrated Textile Parks (SITP)
- Coverage of major machinery for technical textile manufacturing under concessional customs Page 2 of 6 duty list of 5%
- Certain technical textile products are covered under Focus Product Scheme, under which exports of such products carry duty credit scrip equivalent to 2% of FOB value of exports
- Technology Mission on Technical Textiles (TMTT)
- Scheme for promoting usage of Agro-textiles & Geo-textiles in North East Region

Additionally, several states in India also offer incentives and assistance to investors, which can include electricity and stamp duty exemptions, concessions in land registration, and single window clearance facilities for investment project applications.
DKTE  Center of Excellence in Nonwovens
Promoted by Ministry of Textiles, Govt. of India

Plot No. 1, 2 and 3, Shri. Lakshmi Co-Operative
Industrial Estate, Hatkanangle – Ichalkaranji
Dt. Kolhapur – 416109 (MS) India
Tel: +91 230 2366354   Email: dktecoe@gmail.com,
Web: www.dktecoenenowovens.in
<table>
<thead>
<tr>
<th>Area</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product-focused Centres of Excellence</td>
<td>Agrotech Synthetic &amp; Art Silk Mills Research Association (SASMIRA), Mumbai</td>
</tr>
<tr>
<td></td>
<td>Geotech Bombay Textile Research Association (BTRA), Mumbai</td>
</tr>
<tr>
<td></td>
<td>Meditech South India Textile Research Association (SITRA), Coimbatore</td>
</tr>
<tr>
<td></td>
<td>Protech Northern India Textile Research Association (NITRA), Ghaziabad</td>
</tr>
<tr>
<td></td>
<td>Indutech PSG College of Technology, Coimbatore</td>
</tr>
<tr>
<td></td>
<td>Sportech WRA, Mumbai in association with VJTI &amp; Kusumgar Corporates</td>
</tr>
<tr>
<td>Process-oriented Centres of Excellence</td>
<td>Composites Ahmedabad Textile Industry's Research Association (ATIRA), Ahmedabad</td>
</tr>
<tr>
<td></td>
<td><strong>Nonwovens</strong> D.K.T.E. Society's Textile &amp; Engineering Institute, Ichalkaranji</td>
</tr>
</tbody>
</table>
COEs under Technology Mission on Technical Textiles (TMTT)

**COE for Protech**
- Lead: Northern India Textile Research Association (NITRA), Ghaziabad
- Partner: Indian Institute of Technology (IIT), Delhi

**COE for Composites**
- Ahmedabad Textile Industry’s Research Association (ATIRA), Ahmedabad

**COE for Geotech**
- Lead: Bombay Textile Research Association (BTRA), Mumbai
- Partner: Ahmedabad Textile Industry’s Research Association (ATIRA), Ahmedabad

**COE for Agrotech**
- Lead: Synthetic & Art Silk Mills Research Association (SASMIRA), Mumbai
- Partners:
  - Man-made Textile Research Association (MANTRA), Surat
  - Navsari Agriculture University, Navsari
  - Knowledge partner:
    - Indian Institute of Technology (IIT), Delhi

**COE for Sportech**
- Lead: Wool Research Association, Thane
- Partner: Veermata Jeejebai Technological Institute (VJTI), Mumbai and Kusumgar Corporates, Mumbai

**COE for Nonwovens**
- DKTES Textile and Engineering Institute, Khalkaranji

**COE for Meditech**
- Lead: South India Textile Research Association (SITRA), Coimbatore
- Partner: AC College of Technology, Chennai

**COE for Indutech**
- PSG College of Technology, Coimbatore
VISION
To be the world class 'Centre of Excellence' for Nonwoven so as to enable the Indian Industry to venture into Technical Textile Manufacturing by offering various services like testing, training, product development, research, incubation and dissemination of knowledge and information.

MISSION
- To build a complete institution that supports high quality research and product development in the field of Nonwovens and Technical Textiles.
- To create state-of-art testing and certification facilities with National and International Accreditation for Nonwoven products and Technical Textile materials.
- To organize workshops, training programmes, seminars and conferences to transfer the knowledge to the industry.
- To encourage and assist new entrepreneurs in the Nonwovens and Technical Textiles sector by providing technical support in project planning, product development, execution, production, and various aspects of management.
Objectives & Activities of DKTE COE Nonwovens

- Provide Facilities for **testing and evaluation of products**
- Facilities for **indigenous development of prototypes/Products**.
- Facilities for **training** of personnel
- Knowledge sharing with stakeholders by arranging seminars and awareness programmes
- Incubation centers where each of the COEs will provide necessary facilities to entrepreneurs for testing new ideas and technologies.
- Resource centre with IT infrastructure that provides knowledge and information on Nonwovens & technical textiles.
- Setting up standards that are at par with global level.
<table>
<thead>
<tr>
<th>Sr No</th>
<th>Item Name</th>
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<tbody>
<tr>
<td>1</td>
<td>GSM TESTER</td>
</tr>
<tr>
<td>2</td>
<td>DIGITAL BURSTING STRENGTH TESTER</td>
</tr>
<tr>
<td>3</td>
<td>DIGITAL THICKNESS TESTER</td>
</tr>
<tr>
<td>4</td>
<td>WATER REPELLENCY TESTER</td>
</tr>
<tr>
<td>5</td>
<td>MICROSCOPE WITH MICROTOME</td>
</tr>
<tr>
<td>6</td>
<td>LOI TESTER</td>
</tr>
<tr>
<td>7</td>
<td>PORE SIZE ANALYSER</td>
</tr>
<tr>
<td>8</td>
<td>UV ACCELERATED WEATHERING TESTER</td>
</tr>
<tr>
<td>9</td>
<td>LINEAR DENSITY &amp; FIBRE CRIMP</td>
</tr>
<tr>
<td>10</td>
<td>AIR PERMEABILITY TESTER</td>
</tr>
<tr>
<td>11</td>
<td>WATER VAPOUR TRANSMITTIVITY TESTER</td>
</tr>
<tr>
<td>12</td>
<td>NON WOVEN ORINTATION</td>
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<tr>
<td>13</td>
<td>LIQUID STRIKE TR. WET BACK</td>
</tr>
<tr>
<td>14</td>
<td>THERMAL CONDUCTIVITY TESTER</td>
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<tr>
<td>15</td>
<td>DIGITAL TEARING STRENGTH TESTER</td>
</tr>
<tr>
<td>16</td>
<td>HYDROTATIC WATER HEAD TESTER</td>
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<tr>
<td>17</td>
<td>GRADIENT RATIO TEST APPARATUS</td>
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<tr>
<td>18</td>
<td>WATER TRANSMITTIVITY TESTER</td>
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<tr>
<td>19</td>
<td>TENSILE TESTING M/C.UTM</td>
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<tr>
<td>20</td>
<td>TENSILE TESTING MACHINE-GEOT GRIPS</td>
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<tr>
<td>21</td>
<td>DIRECT SHEAR BOX</td>
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</table>

**Chemical Testing lab instruments**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Item Name</th>
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<tbody>
<tr>
<td>1</td>
<td>POTENTIOSTAT</td>
</tr>
<tr>
<td>2</td>
<td>HOT PLATE MAGNETIC STIRRER</td>
</tr>
<tr>
<td>3</td>
<td>DIGITAL PH METER</td>
</tr>
<tr>
<td>4</td>
<td>ELECTRONIC BALANCE</td>
</tr>
<tr>
<td>5</td>
<td>VISCOMETER BROOKFIELD</td>
</tr>
<tr>
<td>6</td>
<td>SHAKING WATER BATH</td>
</tr>
<tr>
<td>7</td>
<td>Water Bath</td>
</tr>
</tbody>
</table>
Thermal Bonding and Hot Calender

HOT CALENDAR– YAMUNA MACHINE WOKS

THERMAL BONDING LINE FROM YAMUNA MACHINE WOKS
R & D ACTIVITIES OF DKTE COE NONWOVENS

Nonwoven for drainage application

CHODANKAR SYSTEMS India

Sludge Dewatering filter bag
R & D ACTIVITIES OF DKTE COE NONWOVENS

Automotive fabric

100% PP
350 GSM

Automotive Carpets

Geo-textiles

50 PET + 50 PP
500 GSM
R & D ACTIVITIES OF DKTE COE NONWOVENS

Filter fabric

GEO Bags
Jaya Shree Textiles

Development of Linen based nonwovens for various technical textiles applications

Technical University of Liberec, Czech Republic

Development nonwoven for insulation

Coated nonwoven products for various technical textiles applications
Development of viscose based nonwovens

Development of nonwoven

Coated nonwoven products for various technical textiles applications
## TRAINING ACTIVITIES OF DKTE COE NONWOVENS

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CONTENT</th>
</tr>
</thead>
</table>
| **1. Orientation course in Nonwovens**  
Duration : 1 week  
Batch size : 20 | I. Introduction to Nonwovens  
ii. Classification of Nonwovens  
iii. Composition and construction of Nonwovens  
iv. Manufacturing of Nonwovens  
v. Testing and evaluation of Nonwovens  
vi. Market scenario of Nonwovens |
| **2. Testing and evaluation of technical textiles**  
Duration : x  
Batch size : 15  
Qualification : Science Graduate / Diploma or Degree in Textiles | i. Introduction& classification of Technical Textiles  
ii. Functional Requirements of Technical Textiles  
iii. Principles of Testing and Evaluation  
iv. Introduction to various test standards  
vi. Testing and evaluation of Technical Textiles |
| **3. Crash course in Testing and evaluation of technical textiles (Customised) (Theory & Practical Demonstration)**  
Duration : 3 days  
Batch size: 5 max.  
Qualification : Science Graduate / Diploma or Degree in Textiles | i. Introduction to Technical Textiles and Testing  
ii. Introduction to various test standards  
iii. Standard Test methods for evaluating Technical Textiles(Specific areas)  
v. Testing and evaluation of Technical Textiles (Specific areas)  
vi. Practical Demonstration of Test Procedures (Specific areas) |
| **4. Entrepreneurship in Nonwovens**  
Duration : 1 week  
Batch size : 20 | i. Introduction to Nonwovens  
ii. Classification of Nonwovens  
iii. Composition and construction of Nonwovens  
iv. Manufacturing of Nonwovens  
v. Testing and evaluation of Nonwovens  
vi. Market research in Nonwovens  
vii. Product development strategy  
viii. Product Pricing  
ix. Government Schemes and Fiscal Policies  
x. Business Promotion for Nonwovens |
D.K.T.E. SOCIETY’S
TEXTILE & ENGINEERING INSTITUTE,
ICHALKARANJI.
Dist. Kolhapur (M.S.) INDIA.

Cordially invites you to visit us at

ITMA 2015
Milan, Italy
12th to 19th November 2015

Prof. (Dr.) U. J. Patil
H.O.D., Textile Department

Prof. C. A. Patil
Director, CoE Nonwovens

Prof. (Dr.) P. V. Kadole
Principal

Stall No. A120, Hall No. 8

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Thank You