



Global Initiative on Academic Networks (GIAN) Program

Nonwoven Technology and Recent Developments (Online Mode)

June 20-24, 2022

**Department of Textile Technology
Dr B R Ambedkar National Institute of Technology, Jalandhar
144011. Punjab. India**

About GIAN Program

The Ministry of Human Resource Development, Government of India has launched program titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence. GIAN program facilitates participation of high-quality international academicians/researchers for delivering short-term courses and programs in Indian institutions. More details on various GIAN courses are available at <http://www.gian.iitkgp.ac.in/>

The Institute

Dr B R Ambedkar National Institute of Technology was established in the year 1986 as Regional Engineering College and was given the status of National Institute of Technology (Deemed University) by the Government of India on October 17, 2002 under the aegis of Ministry of Human Resource Development, New Delhi. The Ministry of Human Resource Development, Government of India has declared the Institute as 'Institute of National Importance' under the act of Parliament-2007. The Institute offers B Tech, M Tech, M Sc, MBA and Ph D programs in several disciplines of Engineering, Science & Technology, and Management. The Institute ranked 49th during the NIRF ranking in the year 2021.

The Department

The Department of Textile Technology is pioneer in grooming textile engineers in this part of the country. Among thirty-one NITs (Institutes of National Importance) of the country, it is the only NIT which runs textile course and provides trained manpower to the textile industry. The department offers broad based undergraduate program on Textile Technology, post graduate program in Textile Engineering and Management and doctoral programs in all areas of Textile Technology. The department has well experienced dedicated faculty, wide gamut of interdisciplinary research activities in compassing developments in fibres, yarns, fabrics and apparels, non-woven, aerosol filtration, geotextiles, composites, medical textiles, chemical wet processing, waste water management and sustainable products.

About the Program

Nonwoven fabrics are one of the several techniques used in the manufacture of fabrics; the others being weaving, knitting and braiding. However nonwoven fabric manufacturing process is the shortest route to manufacture fabrics, directly from fibres or polymers and the speeds of manufacturing are very high, which may correspond to paper manufacturing in some cases. Therefore, the cost of manufacturing nonwoven fabrics is very low as compared to woven and knitted fabrics. Moreover, different fabric structures can be produced for different applications ranging from the lofty waddings or insulations to stiff compact fabrics for reinforcement or fibrillated structures for application as barrier to water/liquids and in filtration or waterproof fabrics. This course will provide a fundamental understanding of Nonwoven technology, nonwoven manufacturing processes and characterization techniques. Recent developments and future opportunities and trends will also be covered. Challenges with growth of nonwovens as well as product design and development for sustainability will be discussed.

Objectives of the Program

The primary objectives of the course are as follows:

1. Emphasize the role of nonwoven fabric manufacturing in the field of textiles.
2. Demonstrate the significance of nonwoven products in different applications.
3. Provide exposure to the participants regarding various techniques of manufacturing nonwoven fabrics and their developments.
4. Awareness regarding the potential of nonwovens, market growth and product designs.

Registration Process

Step-1: One time Web (Portal) Registration-

Visit GIAN Website at the link: <https://gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill up the blank registration form and do web registration by paying ₹500 online through Net Banking/Debit/Credit card. This provides him/her with life time registration to enroll in any number of the GIAN courses offered. Those candidates, who have already enrolled at the GIAN portal, need not register again.

Step-2: Course Registration (Through GIAN Portal)-

Log in to the GIAN portal with the user ID and Password created. Click on "Course Registration" option given at the top of the registration form. Select the Course titled 'Nonwoven Technology and Recent Developments' from the list and click on 'Save' option. Confirm your registration by Clicking on 'Confirm Course'.

Step-3:

After GIAN Registration the Course fee is to be deposited online in the institute account, as per details given below. **The program fee covers the course materials and access to all the sessions.** Participants should pay registration fee through online mode (NEFT/IMPS), and fill up transaction ID/details in the google form with the link and the account details given below;

Step-4:

After online payment of registration fee, fill the google form Registration link given below:

https://docs.google.com/forms/d/e/1FAIpQLSfrnpQxm81ZIC9HUDa406R6KGu6yezAhdwpVSN5_eBslSI-NQ/viewform?usp=sf_link

The last date for registration is 10th June, 2022 and submit ther details in the google form. The link for the course will be shared (Google meet/ Zoom) by 18 June, 2022.

Who can attend...	<ul style="list-style-type: none"> • Executives, engineers and researchers from academia, industry and government organizations including R&D Laboratories with a background in textile technology/fibre science • Students (B Tech/ M Tech/PhD) and faculty from reputed academic institutions and technical institutions 												
Fees	<p>The participation fee for taking the course would be:</p> <table> <tr> <td>Faculty of Academic institutions</td> <td>:</td> <td>Rs. 2000</td> </tr> <tr> <td>Students</td> <td>:</td> <td>Rs. 1000</td> </tr> <tr> <td>Industry</td> <td>:</td> <td>Rs. 2500</td> </tr> <tr> <td>Participants from abroad</td> <td>:</td> <td>\$ 100</td> </tr> </table>	Faculty of Academic institutions	:	Rs. 2000	Students	:	Rs. 1000	Industry	:	Rs. 2500	Participants from abroad	:	\$ 100
Faculty of Academic institutions	:	Rs. 2000											
Students	:	Rs. 1000											
Industry	:	Rs. 2500											
Participants from abroad	:	\$ 100											

Account Detail for Payment of Fee:

Bank Name	Canara Bank
Account Name	Global Initiative on Academic Networks (GIAN)
Account Number	2945101004688
IFSC Code	CNRB0002945
SWIFT	CNRBINBBBMC

Tentative Lecture Schedule

Day 1

- Lecture 1: (GB) - Introduction to Nonwovens
Lecture 2: (VM) – Nonwovens: Classification and methods of manufacturing
Lecture 3: (GB) - Nonwovens Markets and Products
Lecture 4: (GB) - Fibers and Fiber Consumption in Nonwovens
Lecture 5: (VM) – Web opening and laying techniques - 1

Day 2

- Lecture 6: (VM) – Web opening and laying techniques - 2
Lecture 7: (VM) - Bonding Techniques: Needlepunching Technology - 1
Lecture 8: (VM) - Bonding Techniques: Needlepunching Technology - 2
Lecture 9: (VM) - Bonding Techniques: Developments in Needlepunching Technology
Lecture 10: (VM) – Properties of Needlepunched nonwoven fabrics

Day 3

- Lecture 11: (VM) –Bonding Techniques: Hydro entanglement Technology
Lecture 12: (VM) –Bonding Techniques: Stitch bonding Technology
Lecture 13: (VM) – Chemical Bonding - 1
Lecture 14: (VM) – Chemical Bonding - 2
Lecture 15: (GB) - Thermal Bonding

Day 4

- Lecture 16: (GB) - Spunbond Technology - 1
Lecture 17: (GB) - Spunbond Technology - 2
Lecture 18: (GB) - Meltblown Technology
Lecture 19: (GB) - Nanofiber Nonwovens
Lecture 20: (GB) - Finishing of Nonwovens -1

Day 5

- Lecture 21: (GB) - Testing and Characterization of Nonwovens
Lecture 22: (GB) – Nonwoven Composites
Lecture 23: (GB) - Recent advances, future Opportunities and Trends
Lecture 24: (GB) - Environmental Issues and sustainability
Online Test

The faculty



Professor Gajanan Bhat did his B Tech in Textiles from Bangalore University, M Tech in Fiber Science and Technology from IIT Delhi in 1984 and M.S in Textile Engineering from Georgia Institute of Technology, Atlanta, GA in 1987. After earning his

PhD in Textile and Polymer Science from Georgia Tech, Atlanta, USA in the year 1990, he joined the University of Tennessee, Knoxville, where his research covered nonwovens- melt blown, spunbonded and biodegradables, plastic recycling, nanotechnology, sustainable materials and high performance fibers. As the director of Nonwoven Research Laboratory, he has focused on production of nanofibers from thermoplastic polymers by meltblowing. At present, he is Department Head, Textiles Merchandising & Interiors and Georgia Athletic Association, Professor of Fibers and Textiles, University of Georgia, Atlanta (USA). He is involved in conducting research in various areas of fibers and textiles. As the Academic Head of the Department with 15 faculty and 300 students, is responsible for all aspects of the department's day-to-day administration and planning for success and growth. He has published 106 papers in referred journals/books, and 150 papers in international conferences, and has five US patents to his credit. He has served as the president of Fiber Society and is also an active member of INDA, TAPPI and the Textile Institute. He is recipient of several awards; the most recent being the TAPPI NET division Technical Achievement Award.



Prof Vinay Midha did his B Tech in Textile Technology from Dr B R Ambedkar REC Jalandhar, M Tech and Phd in Textile Technology from IIT Delhi. He has more than 25 years of experience in academics and research. At present, he is Professor in the department of Textile Technology at Dr B R Ambedkar

National Institute of Technology Jalandhar (India). His areas of interest include, nonwovens, geotextiles and sewing thread/garment interaction. He has contributed more than 70 research papers in referred journals and 50 research papers in International Conferences of repute. He has contributed seven book chapters published by Woodhead Publications and CRC press. He has applied for three Indian Patents and is recipient of 'President of India' Prize, 'The Institution Prize' and 'Dr Triguna Charan Sen Prize' and Outstanding Presentation award for his research papers by The Institution of Engineers and TBIS. He is a member of the Textile Institute, Manchester, Institution of Engineers (India) and Indian Society for Technical Education.

Nonwoven Technology and Recent Developments (June 20th – 24th, 2022)

Chief Patron

Sh S C Ralhan (Chairman, BoG)

Patron

Prof B K Kanaujia (Director, NITJ)

Prof A Mukhopadhyay

Co-Patron

Dr A K Choudhary, HoD, TT

Dr Monica Sikka

Local GIAN Coordinators:

Dr Rajneesh Rani

Dr Shish Ram

Course Coordinator

Dr Vinay Midha

Professor, Department of Textile Technology,

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<http://www.gian.iitkgp.ac.in/GREGN>