

One Week Short term Course on Advances in Woven Fabric Formation and Structure

(Sponsored by Ministry of Human Resource Development, Govt. of India, New Delhi, Under the Programme of “Global Initiative of Academic Networks”)
19th-23rd December 2016

Overview:

The demand for weaving machines has always been an intricate issue generated by the need of textile industry to meet ever-increasing quality parameters. New developments are taking place in such a direction, which ensures reduced time, energy and cost involved. Heavy mechanical parts are now being replaced with electronic or microprocessor controlled alternatives.

This course will discuss about developments in shuttleless machines with hope that, as a staunch advocator of modernization, awareness of developments would lead to critical analysis of machinery options, which in turn would help in selection and implementation of right technology. Among shuttleless machines considerable developments are observed in 3 basic picking principles, Rapier, Waterjet and Airjet, while the new multiphase weaving developed by SULZER Co. is worth discussing. A selective, noteworthy feature covering various machinery manufacturers and those that a professional should know for better understanding of the machines will be discussed. If our dream of enhancing number of shuttleless machines in India is to be realized, then the need of the day would be the proper awareness of developments in machines, a critical analysis of technology for selection of machines, a thorough understanding of the technology and suitable attitude for their operation. Hence as the first step, the developments in these machines will be discussed in brief.

In the last two decades, spectacular progress has been made in the field of weaving technology and the most significant being the replacement of convectional looms by shuttleless looms for increasing productivity and quality of the end product. Shuttleless weaving is making an impact on the textile industry. The change over from fly shuttle to shuttleless involves both new technology and shift from labour intensive to capital intensive mode of production. Moreover, for export market, the quality requirements are becoming more and more stringent with the result that the export of the Indian mills is falling. Market demand is also escalating for long lengths of fault free fabric, which is only possible with shuttleless weaving machines. Increased labour cost without any corresponding increase in productivity is resulting in reduced profit to mill owners. So today, we are in need of shuttleless machines which are weaving from the lightest to the heaviest of fabrics and diversified products using materials like spun, jute, woolen, worsted, metal wire, glass wire, mono and multifilament etc. with good quality.

Objectives :

The primary objectives of the course are as follows:

- i) Exposing participants to the developments of air jet, waterjet, rapier, gripper, multiphase and 3D weaving technology.
- ii) Building in confidence and capability amongst the participants in the application of latest technology tools and techniques in industry.
- iii) Providing exposure to practical problems and their solutions related to such mechanisms.
- iv) Developing new ideas for designing technical textile products.

Course Contents:

- ❖ **Innovation in Weaving Technologies**
 - (a) Warp Preparation Technologies
 - (b) Weaving Technologies
Air/Water Jet, Ravier, Shuttle, Dobby and Jacquard Weaving
 - (c) Rapid Prototyping
 - (d) Applications
- ❖ **Formation of Innovative Structures**
 - (a) 3D Woven
 - (b) Disc-Shaped using Electrostatic Forces
 - (c) Robot Controlled Meltblown
- ❖ **Structure/Property Relationships of 3D Woven Composites**
 - (a) Fiber Volume Fraction
 - (b) Performance Properties: Tensile, Flexural, and Impact
- ❖ **Composites from Braided structures**
 - (a) Braiding- Technology, structures
 - (b) Composites from Braided structures.
- ❖ **Composites from Natural Materials**
 - (a) Composites from Cotton Fibers
 - (b) Composites from Tururi Fibers
 - (c) Composites from other natural fibers like coir, jute and sisal.
- ❖ **Smart Composites for Structure and Health Monitoring**

Who can attend?

- Executives from private and government engineering organizations.
- Researchers from manufacturing, service and government organizations, including R&D laboratories.
- Senior B.Tech./BE/BSc Engineering students, M.Tech. and Ph.D. students working in the areas of Textile/Mechanical/Manufacturing/Production/Material engineering.
- Faculty members from academic and technical institutions and R&D centers working in the areas of Textile/Mechanical/Manufacturing/Production/Material engineering.

Course period and venue:

19th December-2016 to 23rd December-2016

College of Engg. & Technology, Bhubaneswar-751 029, Odisha, India.

Course fee:

- Participants from industries: Rs. 3000
- Participants from academic/technical institutions / Govt. and R&D units: Rs. 2000
- Students(except CET): Rs. 500
- Participants from abroad : US \$100

The fee includes all instructional materials, computer use for tutorials and assignments, and laboratory equipment usage charges. The course fee does not include accommodation. The participants will have to arrange accommodation on their own. Good number of hotels and budget guest houses are available in the twin city of Bhubaneswar and Cuttack.

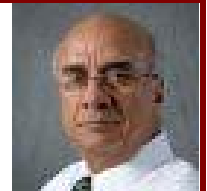
Registration:

Interested candidates need to apply for the course by sending the duly filled registration form with a demand draft drawn in favour of “Principal, C.E.T. Bhubaneswar” payable at Bhubaneswar to the **Course coordinator and registering in <http://www.gian.iitkgp.ac.in/GREGN/index>.**

The last date of receipt of registration request is 5th December 2016. Number of participants for the course is limited to 30 (except CET). The participants will be selected on first cum first serve basis. Selected participants will be intimated over e-mail.

Course Faculty:

Prof. Abdel-Fattah M. Seyam is Recipient of first place award (with Mehmet E. Ince of Textile Engineering Department, Gaziantep University, Turkey) for the proposal titled “Application of Composites from 3D Orthogonal Woven Preforms in Automotive and Marine”, Turkey Innovation Week, the Turkish Exporters Association, and Istanbul, Turkey. He is also Recipient of second place award (with Mehmet E. Ince of Textile Engineering Department, Gaziantep University, Turkey) in Mobiltech (Transportation) Category for the proposal titled “Application of Composites from 3D Orthogonal Woven Preforms in Automotive and Marine”, 6th International R&D Brokerage Event, Bursa, Turkey. He is a recipient of College of the NC State University Alumni Distinguished Graduate Professorship Award, 2011, 2012 and 2014. Prof. Seyam was College of Textiles nominee for the NC State University the Alumni Distinguished Graduate Professor Award, 2008 and 2009.



Course coordinator and address for correspondence:

Dr. B.P.Dash

Head of Dept. (Textile Engg.), College of Engg.& Technology, Bhubaneswar

PO- Mahalaxmi Vihar, Khandagiri, Bhubaneswar-751029, bpdash@cet.edu.in, Cell – 09437385554

Dr. B.P. Dash is an Asstt. Professor having 16 years of teaching experience. He holds a Ph.D. degree in Textile Technology from Indian Institute of Technology Delhi. He has more than 20 research publications to his credit. His research area include 3D woven structures, Textile reinforced composites.

Advisory Committee:

Chief Patron

Prof. S.S.Pattanaik, Vice Chancellor, BPUT, Odisha

Patron

Prof. P.K.Patra, Principal CET.

GIAN Coordinator

Prof. L.N. Panda, Prof. Mechanical Engg.

PIC, Accounts

&

Prof. K.N. Das

Nodal Officer Finance, TEQIP II

**Registration form for One Week Short term Course on
Advances in Woven Fabric Formation and Structure**

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Name :

Designation:

Dept:

Organisation:

Address for Communication:

Mobile No.

E mail:

This is to certify that the above information furnished by me is true to the best of my knowledge and belief.

Date:

Signature of Applicant

Signature of Head of Institution with seal