
ANNUAL REPORT 2017



DEPARTMENT OF KNITTING



National Textile University, Faisalabad

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Annual Report 2017

1 Introduction to knitting department

The Department of knitting is an independent department that was established in 2011, focuses its activities on the training of fabric engineers. Every effort is being made to equip students with ample knowledge of knitting techniques. The teaching activities are carried out by well-qualified and dedicated faculty members having industrial experience. The department is equipped with a full range of knitting machines. Students are given extensive practical training to augment their theoretical knowledge. Regular visits to the Knitting units are organized to familiarize the students with the industrial environment and to get first hand feel of the industry. The department provides testing and consultancy services to the industry in addition to the normal teaching assignments. Research and development projects are also carried out for different sectors of textile industry.

2 Mission statement

To educate our graduates with the required competence of process optimization, research and product development and industrial management in the field of knitting, so that they can participate in the social, moral and economic development of our nation through academics, research and technological innovations.

3 Research

Knitting department has great interest in research and development. Knitting department is focusing in the field of warp knitting, weft knitting, warp weft hybrid knitting, knitted fabric composites and auxetic knitting. The department has also done industrial based project in collaboration with different knitting industries.

4 Facilities

The research and development projects are carried out for different textile sectors. Our major research area is in the field of mechanical and structural characteristics of knitted fabric. The Knitting department has excellent laboratory facilities. A range of the latest knitting machines are available in the department including flat and circular knitting machines. Hand driven Flat

Knitting Machine is also available which can produce a variety of designs, ranging from single jersey to jacquard. Recently Shima Seiki SFG-I Ultrafine seamless Gloves knitting machine (Fully automated) and Lonati 144 GL (4") Socks knitting machine are added. This will not only help students to equip themselves with the machine knowledge but also to implement their research ideas. A number of testing instruments are also available to test the different fabric parameters. The department has its own library, having a collection of books, journals, manuals, research projects and helping material in soft (CDs) and hard form.

5 Academic

5.1 *Full time faculty members*

Sr.#	Faculty Member Name	Designation	Qualification	Pictures
1	Dr. Hafsa Jamshaid	Assistant Professor	PhD in Textile	
2	Mr. Haritham Khan	Lecturer	M.S. in Advanced Materials	
3	Mr. Sikandar Abbas Basra	Lecturer	M.S. in Textile	
4	Mr. Jamal Akbar	Lecturer	B.Sc. in Textile	
5	Mr. Zeeshan Azam	Lecturer	B.Sc. in Textile	
6	Miss. Norina Asfand	Lecturer	B.Sc. in Textile	

5.2 Faculty on higher studies

Sr.#	Faculty Member Name	University	Country	Pictures
1	Mr. Hafiz Shehzad Ahmad	NTU Faisalabad	Pakistan	
2	Mr. Waqas Ashraf	University of Putra Malaysia(UPM)	Malaysia	
3	Mr. Muzammal Hussain	Lille University of Science and Technology	France	
4	Mr. Habib Awais	University of Sains Malaysia(USM)	Malaysia	

6 Research, product development and commercialization

6.1 Research articles

1. Rajesh Mishra, Hafsa Jamshaid, & Jiri Militky, "Basalt nanoparticle reinforced hybrid woven composites: Mechanical and thermo-mechanical performance in Fibers and Polymers", Journal of the Textile Institute, Vol. 18(12), No. , (2017), pp.
2. Hafsa Jamshaid, Rajesh Mishra, Jiří Militk & Muhammad Tayyab Noman, "Interfacial performance and durability of textile reinforced concrete", Journal of the Textile Institute, Vol. , No. , (2017), pp.
3. S. Hussain, V. Glombikova, A. Havelka, H. Jamshaid, S.S. Batool and M.Z. Khan , "Moisture Transport Phenomena of Functional Underwears", Fibers & Textile , Vol. 2, No. , (2017), pp.
4. Hafsa Jamshaid , "Basalt Fiber and its Applications", Textile Engineering & Fashion Technology, Vol. 6, No. , (2017), pp.

5. Rajesh Mishra, Hafsa Jamshaid & Jiri Militky, "Investigation of Mechanical Properties of Basalt Woven Fabrics by Theoretical and Image Analysis Methods", *Fiber and Polymers* , Vol. 18, No. 7, (2017), pp.7
6. Veera kumar, Rajesh Mishra, Jana Salacova, Mohanapriya Venkatraman, Dana Kremenakova, Jiri Militky , Hafsa Jamshaid , "Functiona; Characteristics evalauation of 3 D dimensional knitted spacer fabrics", *Vlakna Textiles* , Vol. 1, No. , (2017), pp.
7. Hafsa Jamshaid, Rajesh Mishra, Jiri Militky and Veronika Safarova, "Investigation of electrical properties of basalt and its hybrid structures", *Textile Research* , Vol. 87, No. 6, (2017), pp.6
8. Waqas Ashraf*, Yasir Nawab, Muhammad Maqsood, Haritham Khan, Habib Awais, Shahbaz Ahmad, Munir Ashraf1, and Sheraz Ahmad2, "Development of Seersucker Knitted Fabric for Better Comfort Properties and Aesthetic Appearance", *Fibers and Polymers* , Vol. 16, No. 3, (2017), pp.3

6.2 Books/book chapters

1. Mr. Haritham Khan, "CAD for Textile Fabrics" in *Structural Textile Design, Interlacing and Interlooping* Vol-I. ISBN 9781315390406, 2017
2. Hafiz Shehbaz Ahmad, "Introduction to Knitting" in *Structural Textile Design, Interlacing and Interlooping* Vol-I. ISBN 9781315390406, 2017
3. Mr. Waqas Ashraf, "Patterning in Weft Knitting" in *Structural Textile Design, Interlacing and Interlooping* Vol-I. ISBN 9781315390406, 2017
4. Mr. Muzammal Hussain, "Patterning in Warp Knitting" in *Structural Textile Design, Interlacing and Interlooping* Vol-I. ISBN 9781315390406, 2017
5. Mr. Habib Awais, "Color and Stitch Effect" in *Structural Textile Design, Interlacing and Interlooping* Vol-I. ISBN 9781315390406, 2017
6. Jirí Militký, Rajesh Mishra, Hafsa Jamshaid, "Basalt fibers" in *Handbook of Properties of Textile and Technical Fibres*, Second Edition Edited by Anthony R. Bunsell, Woodhead Publishing publication. ISBN: 978-0-08-101272-7 (print), ISBN: 978-0-08-101886-6 (online), 2017.

7. Hafsa Jamshaid, Jiri Militký, Rajesh Mishra, Ludmila Koukolikova , “Basalt fibers and their composites” Novelties in fibrous material science” vol.1V, ISBN 978-80-7494-390-4,2017.
8. Hafsa Jamshaid, Rajesh Mishra, Jiri Militk , “Analyze the weavability problem during production of basalt hybrid fabrics” Novelties in fibrous material science” vol.1V, ISBN 978-80-7494-390-4,2017
9. Haritham Khan, Hafsa Jamshaid, Rajesh Mishra, Jiri Militky, Rudolf Sramek “Development of cost effective cut resistant gloves by using virgin and recycled PPTA” Novelties in fibrous material science” vol.1V, ISBN 978-80-7494-390-4,2017
10. Hafsa Jamshaid, Habib Awais, Rajesh Mishra, “The mechanical, comfort & UV resistance properties on interlock derivatives” Novelties in fibrous material science” vol.1V, ISBN 978-80-7494-390-4,2017.

6.3 Conferences papers

1. Hafsa Jamshaid, Rajesh Mishra , Jiri Militky, “Evaluation of acoustic Characteristics of woven fabrics in relation to fiber and weave” 16-19 May ,TBIS 2017 China.
2. Hafsa Jamshaid, Rajesh Mishra , Jiri Militky. “Flame-resistant pure and hybrid woven fabrics from basalt” in 29-31 May, Autex 2017, Greece .
3. Mr. Haritham Khan Students exchange conference , "IAESTE AC-2017", 70th IAESTE Annual Conference 2017, Venue: South Korea, (2017)
4. Uzair hussain, Hafsa Jamshaid, "Study Of Thermal Comfort Of Single Jersey Fabric By Utilization Of Recycled Wool With Polyester", 9th Central European Conference (Fibre – Grade Polymers, Chemical Fibres and Special Textiles), Venue: Liberec,Czech Republic, (2017)
5. Uzair hussain, Hafsa Jamshaid, “ Investigation of comfort properties of flame resistant fabrics”, International Conference on Technical Textiles (ICTT), Venue: NTU FSD, (2017)
6. Hafsa Jamshaid, Uzair hussain, “Study of Structural Performance and Durability of Textile Reinforced Concrete”, International Conference on Technical Textiles (ICTT), Venue: NTU FSD, (2017)

6.4 R & D products of knitting



Acu-pressure S\socks



Electrically heated gloves



Permanent odorless antimicrobial



Socks for diabetic patients



Knitted composites



Development of knitted denim

6.5 Awards

1. Dr. Hafsa Jamshaid, Chairperson Knitting, has been awarded Fellowship of Textile Institute, UK. The Fellowship is the chartered professional which is awarded under the Textile Institute's Royal Charter.
2. Dr. Hafsa Jamshaid won Rs. 0.48million Grant from HEC under Start-up Grant Program
3. Mr.Haritham Khan won Rs. 0.02 million grant from Crestex (pvt.) Ltd. Faisalabad under DICE 2017
4. Mr.Habib Awais won Rs. 0.02 million grant from Interloop (pvt.) Ltd. under DICE 2017

6.6 Final year projects

Following MS projects were completed by knitting students in 2017.

Name of student	Project title
Mr.Habib Awais	Development of banana fibre extraction and wet laid nonwoven machine
Mr.Haritham Khan	Development of light weight and cost effective ballistic armor

Following BS projects were completed by knitting students in 2017.

Name of student	Project title
Mr.Abdul Hai Qazi	Modification of Knitting Machine to Produce Reversed Sock Ready for Toe Closing
Ms.Mehwish Iqbal	
Ms.Ayesha Saeed	Analysis of Stretch and Recovery of Socks
Mr.Hassan Rasheed	
Mr.Hamza Khan	Cost Estimation from Yarn to Knitted Garments in Local SME's and Comparison with Large Industries
Mr.Muhammad Zaid	
Mr.Hazrat Habib	Investigation Abrasion Effect on Polyester Yarn due to Elevated Temperature during Knitting
Mr.Muhammad Rizwan	

Mr.Muhammad Manzoor	Development of Winter Functional Gloves for Motor-Cyclists
Ms.Tooba Altaf	
Mr.Usama Ubaid	Development of Hybrid Composite for Advanced Applications
Ms.Rida Khalid	
Mr.Tufail Hassan	Study the Factors Affecting Pilling in Spun Polyester Socks
Mr.Usman	
Mr.Asfar Hussain	Reduction of Fluff on Socks Knitting Machine
Mr.M. Abdur Rehman	

6.7 Development of 1st knitting software

Department of knitting, in collaboration with department of computer science has developed a 1st knitting calculation software. The software has many modules. The software gives yarn conversions, yarn requirements, knitted fabric parameters, production calculations and finished fabric parameters based on circular knitting machine and flat knitting machine. The software is android and PC based and can be operated on smart phone. After further modification, it will be available on internet.

7 Trainings & developments

Following faculty members and staff had trainings.

Sr.#	Date	Name	Designation	City/Country	Duration
1	Dec-2016-Feb2017	Mr. Haritham Khan	Lecturer	South Korea	2 Months
2	18 th -22 nd Sep 2017	Mr. Tariq Mehmood	Staff	Klash Textile	5 Days
3	11 th -15 th Sep 2017	Mr. Muhammad Atif	Staff	WinTag Knitwear	5 Days
4	26 th -30 th Aug2017	Mr. Abdul Jabbar	Staff	Choudhary Enterprises	5 Days
5	13 th -15 th Sep 2017	Dr. Hafsa Jamshaid	Asst. Prof	Interloop(pvt)	3 Days
6	13 th -15 th Sep 2017	Hafiz Shehzad Ahmad	Lecturer	Interloop(pvt)	3 Days

7	13 th -15 th Sep 2017	Mr. Haritham Khan	Lecturer	Interloop(pvt)	3 Days
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8 Important events and activities

Sr.#	Date	Events & Activities
1	Feb 08, 2017	R & D Team of Masood Textile Mills visited Knitting Department
2	Feb 17, 2017	Faculty of Knitting Department visited Masood Textile Mills
3	Feb 22, 2017	Departmental board of study was arranged by knitting department
4	Mar 14, 2017	1 st "Knit to achieve competition" was arranged by Knitting Department
5	Apr 14, 2017	A training workshop was arranged on recent advancement in circular knitting technology by Mr. Shiro Yokoi and Mr. T Shimizu from Fukuhara Industrial & Trading Co.Ltd
6	Jun 17, 2017	A combined delegation of FCCI and PHMA visited Knitting Department
7	Oct 17, 2017	1st meeting of Fabric Manufacturing focus group under the convenorship of Dr. Hafsa Jamshaid

8	Oct 30, 2017	Training Session on Advancement and Opportunities in Knitting was arranged by Mr. Akbar Affandi, Sales Engineer in Textile Institute of Pakistan, Karachi
9	Nov 02, 2017	A Lecture was arranged on "New Trends & Developments in Knitting Textile Industry" by Professor Dr. Deng Zhong-min, China
10	Nov 16, 2017	Intra-departmental sports week of knitting department was arranged
11	Dec 19, 2017	A seminar on " Scope of knitting in Pakistan" was arranged by Knitting society. Mr. Hameed K.Lateef (CEO) Textile Testing International (TTi), Mr. Latif Zaib (GM) Interloop Pvt. Ltd. and Mian Naeem Ahmed(Chairman) Pakistan Hosiery Manufacturing Association (PHMA) were key speakers.
12	Dec 28, 2017	Workshop on Jacquard Designs on Flat Knitting Machines was conducted. Mr. Khurram Shahzad Ghuman, Programmer (SDS ONE & M1 PLUS) & Technician of Flat Knitting Machine, SHIMA SEIKI and Stoll CMS was the trainer.

8.1 Departmental board of study

Department of knitting arranged a departmental board of studies. During this meeting new



courses, course outlines of existing courses, internships and research projects of undergraduate students were discussed. Mr. Adeel Tahir GM Operations (Interloop Ltd.) and Mr. Yasir Rasool Assistant Manager (MTM) from industry and all faculty members of Knitting participated. Meeting was presided by Dr. Hafsa Jamshaid, chairperson knitting. During this meeting suggestions to add some subjects were discussed which was forwarded for consideration in faculty board of studies.

8.2 Visit of delegations from FCCI and PHMA

A delegation of FCCI and PHMA visited knitting department headed by Chairman PHMA Khawaja Amjad , Dr.Khurram Tariq Ex.Chairman PHMA and Engr. Ahmad Hassan VP FCCI were also in delegation. Chairperson knitting department briefed the delegation about knitting department and asked them to contribute to make this program more industry oriented. Following are highlights of their visit.



Dr.Khurram Tariq donated starfish knitting software to knitting department and said that team of Kay & Emms will also provide free training of the software.

Kay & Emms and Khawaja cotton industries announce that they will hire fresh graduates of knitting in their industries on regular basis.

Students summer internship program was discussed with PHMA that how it can be made more useful for industry. It was also decided in that meeting that both PHMA and Knitting department will meet on bimonthly basis to make things more pragmatic.

8.3 1st meeting of fabric manufacturing focus group

1st meeting of Fabric Manufacturing focus group was held in the meeting room of ORIC under the convenorship of Dr.Hafsa Jamshid. Expert from knitting and weaving industry participated in the meeting to chalk out projects of National Innovation Basket for next 10 years keeping in view the threats and opportunities available for textile sector.

All the members resolved to complete this task before next meeting of DICE Textile Industrial Advisory board.



8.4 Outreach/collaboration

A new milestone in the history of NTU was established. Textile is not limited to Apparel. It is vast field. Understanding the need of present scenario, NTU sign an MOU with Fakhar associates, one of the renowned civil consultant & structural designer of Pakistan for working in “Buildtech” field. MOU is signed by Rector NTU and owner of Fakhar associates. It was possible by efforts of Dr. Hafsa Jamshaid, Mr.Uzair Hussain, Dr. Waseem Ibrahim and Dr. Ahshan Nazeer. It will become a bond between technical textiles and construction industry with cementing new roles.



8.5 German ministry of education Project

German Ministry of Education funds the project InoCottonGROW: water foot prints into Cotton to FiW and university of Aachan to be carried out in Pakistan and partially in Turkey. Team of NTU joined hands with them.

NTU will work with them as partner. The meeting with worthy Rector NTU, Dr.Tanveer Hussain was arranged due to continuous efforts headed by Dr. Waseem Ibrahim, in coordinative support of Dr. Ahsan, Dr. Hafsa Jamshaid and Mr. Uzair Hussain, Partners representatives Dr.Ing Wolfgang Kirchhof, Dr Frank-Andreas Weber and Christian Grimm are quite positive to work with NTU.



8.6 Infrastructure/ physical items

In collaboration with Al-Murtaza Machinery Pvt. Ltd. department of Knitting brought more than 20 years idle flatbed fully jacquard machine in working position. Addition of this machine is a good omen and it will help students understand varieties of fabric designs and structures. Speaking on the occasion Prof. Dr. Tanveer Hussain, rector NTU and Dr. Zafar Javed, Registrar, appreciated Dr. Hafsa Jamshaid, Chairperson and faculty of knitting department for their efforts.



8.7 Visit of Sialkot textile sector

Faculty of National Textile University under the supervision of worthy rector, headed by Dr. Hafsa Jamshaid and accompanied by Dr. Waseem Ibrahim, Dr. Ahsan and Mr. Uzair Hussain, visited industry based at Sialkot. Productive discussions with different industries and Sport association of Sialkot, which involved a complete solution for R&D line development and management skills enhancement. It has laid a foundation for numerous Industry-University link ups for solution of industrial problems, process modifications and Research and Development.



8.8 Study tour to Lahore fashion Pvt. Ltd

Department of Knitting arranged an industrial tour to Lahore Fashions Pvt Ltd. for the students of 5th and 7th semester. Established in 1995, Lahore fashions is a knit wear industry which exports its knitted goods to European market. They produce products ranges in different fabrics like single jersey, interlock, jacquard and velour with different blends of cotton and polyester. Students physically observed all processes and learnt about their newly developed fabrics



8.9 Knitting intra-departmental sports week

Department of Knitting organized finals of intra-departmental sports competitions. The event



was formally inaugurated by Dr. Hafsa Jamshaid, Chairperson Knitting. All faculty members encouraged students while distributing prizes among the winners.

8.10 Training session on advancement and opportunities in knitting

Nazar & Co Pvt. Ltd. is one of the leading knitting machinery manufacturers both of warp & weft in Germany. Mr. Akbar Affandi working as Sales Engineer & teaching in Textile Institute of Pakistan, Karachi visited Knitting department of NTU and delivered a lecture on advancement and opportunities in Knitting. It was an interactive session and students of Knitting 7th Semester participated in it.



8.11 Advancements in circular knitting machines

A successful event organized by Department of Knitting. Mr. Shiro Yokoi and Mr. T. Shimizu from Fukuhara Industrial & Trading Co. Ltd highlighted the "Advancements in Circular Knitting

Machines". At the end of sessions Chairperson Department of Knitting Madam Dr. Hafsa Jamshaid presented shields of honour to respected guests.

All the participants were also awarded with certificates by the department.



8.12 1st Knit to achieve competition

Department of knitting, in collaboration with department of textile design arranged 1st Knit to Achieve competition. Students actively participated in the competition. Hand knitted products was placed in the display.

8.13 Participation in 2nd all Pakistan DICE event

Student of knitting department displayed their products in the stall of knitting during 2nd All Pakistan DICE textile 2017. Innovative knitted products got great attention from visitors.



8.14 Welcome orientation of new batch 2017

Department of knitting warmly welcomed the students of new session. An orientation was given to introduce different department of NTU. The scope and responsibilities of each department were also informed.



8.15 Students annual dinner

Knitting society organized annual function in Garvesh hotel Faisalabad to show their affiliations with NTU and Knitting department. Industrial honors were invited to appreciate them. All the faculty members well wished for their bright future.



8.16 Open day of knitting department

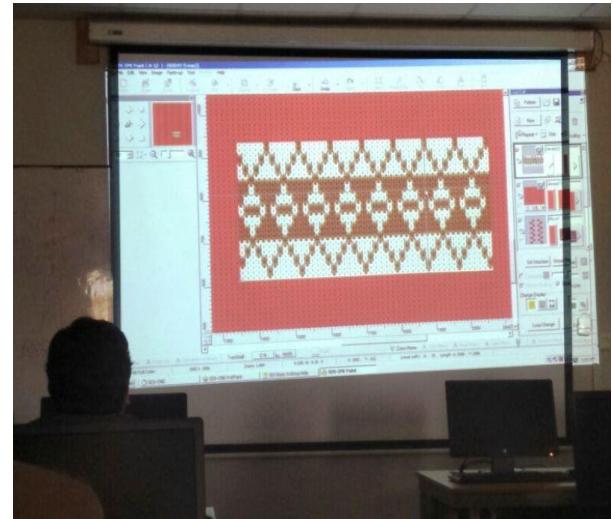
Department of Knitting arranged project display for the first time in the history of NTU. Different industry officials visited the department and evaluated the projects. At the end positions were also announced for participants



9 Event organized by knitting society

9.1 *Workshop on jacquard designs on flat knitting machines*

Society of Textile Knitters organized a workshop on “Jacquard Designs on Flat Knitting Machines”. Mr. Khurram Shahzad Ghuman, Programmer (SDS ONE & M1 PLUS) & Technician of Flat Knitting Machine, SHIMA SEIKI and Stoll CMS, was invited as a resource person. He has extensive experience of more than 10 years in designing various jacquard designs on flat knitting machines. During workshop, he shared different useful techniques and his own various developments. Students of Knitting department exchanged ideas and made this event successful. Concluding the workshop, Dr. Hafsa Jamshaid, Chairperson Knitting, thanked Mr. Khurram for his time and knowledge and presented shield as a token of thanks.



9.2 *Seminar on scope of knitting in Pakistan*

A seminar on scope of knitting in Pakistan was arranged by Society of Textile Knitters. Mr. Hameed K. Lateef (CEO) Textile Testing International (Tti), Mr. Latif Zaib (GM) Interloop Pvt. Ltd. and Mian Naeem Ahmed (Chairman) Pakistan Hosiery Manufacturing Association (PHMA)

were key speakers. More than 150 students participated. They threw light on market demand, expectation from Knitting graduates and how a fresh graduate can better serve Textile Industry.



9.3 Lecture on new trends & developments in knitting textile industry

Society of Textile Knitters invited Professor Dr. Deng Zhong-min, Chief Manager at Wuhan Textile University (WTU) China. To his credit are 160 research papers, 20 provincial awards and 28 years of wide academic and industrial experience. Application of computers in textile industry, R&D in Weaving and Knitting are his research domains. During his lecture, he threw



light on current market of Knitting in Pakistan and China and future demands. Followed by his lecture was a short visit of all departments at NTU and then Masood Textile Mills Ltd.

Chairperson Knitting also discussed possibilities of bilateral exchange of students, researchers and technicians. We look forward to having a productive collaboration.

9.4 Lecture on overview of quality management

Society of Textile knitters had arranged a workshop on "Overview of Quality Management" in collaboration with Quality Enhancement Cell of National textile University Faisalabad. Director. QEC Muhammad Nisar Bhatti addressed the participants. Different techniques were explained to enhance the quality of fabric specially knitted products. A shield was given by Society of Textile Knitters to the respected guest.



9.5 Visit to Chaudhary warp knitting industry

Final year students of Knitting Department visited Chaudhary warp knitting Industries. It was a very informative visit indeed it enhanced the knowledge and basic concepts of students about warp knitting.

