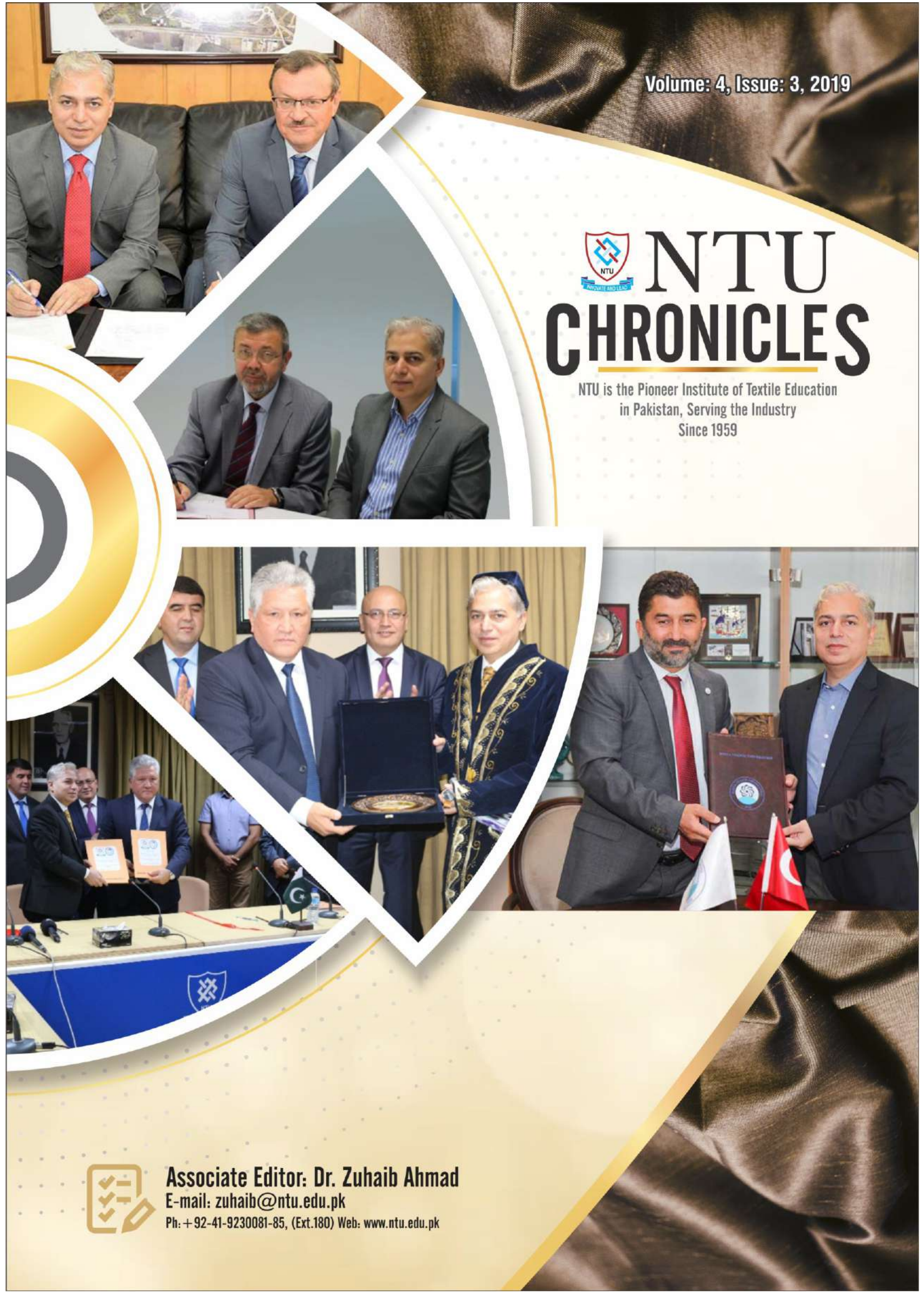


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NTU CHRONICLES

NTU is the Pioneer Institute of Textile Education
in Pakistan, Serving the Industry
Since 1959



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Contents

▪ Funding and Grants	03
▪ Important Visit at NTU	03
▪ MoUs and Collaborations	04
▪ Career/Job Placements	07
▪ Seminars/Workshops/Trainings	08
▪ Important Events and Meeting at NTU	11
▪ Participation in National and International Events	13
▪ Achievements and Awards	15
▪ Student Activities and Industrial Tours	17
▪ Testing Services Offered by NTU	20

VISION

National Textile University aspires to have a transformative impact on the socio-economic development of the country in general and textile and clothing industry in particular with outstanding education, research, and eco-friendly innovation.

MISSION

The mission of National Textile University is to contribute towards sustainable socio-economic development of society and welfare of humanity through pursuit of excellence in education, research and innovation in areas of National importance with special emphasis on textile and clothing.

Proof-read by:
Ambar Shah (17-NTU-1520)

Funding and Grants

MS Computer Science students won travel grant



Ateeq-ur-Rehman, the student from MS Computer Science, won a travel grant to present his research in the 1st International Conference on Electrical, Communication and Computer Engineering (ICECCE-2019) organized by the University of Buner. The title of his publication was "Computer-Aided Diagnosis for Segmentation and Classification of Burnt Human Skin". For this travel grant, only 10 papers were selected out of 400+ papers submitted in the conference. This publication was the outcome of his MS Thesis titled "Computer-Aided Diagnosis for Segmentation and Classification of Burnt Human Skin" which was supervised by Mr. Waqar Ahmad and Co-supervised by Dr. Muhammad Asif. This thesis was performed in collaboration with Dr. Saeed Ashraf Cheema, the Head of Plastic Surgery Department, Allied Hospital, Faisalabad Medical University, Faisalabad.

Library Support Program by HEC

By the grace of Almighty Allah, NTU Library has got the grant of Rs. 1,000,000/- (One Million only) from Higher Education Commission (HEC), Islamabad under "Library Support Program" for Collection Development. The library team is really thankful to HEC (Academic Division) for the release of this grant, helping in the acquisition of latest publications/books related to Textiles, Polymers, Applied Sciences, Management and Computer Sciences.



Important Visit at NTU

Visit of National Computing Education Accreditation Council (NCEAC)



A delegation from the National Computing Education Accreditation Council (NCEAC) visited the Department of Computer Science at National Textile University, Faisalabad. The purpose was to accredit the BS(SE) program of the Department. The external experts were Prof. Dr. Syed Asad Hussain (Dean; COMSATS Lahore) and Prof. Dr. Abdul Aziz. The visit was quite successful. The external experts appreciated the efforts of the department and accreditation team. Mr. Shahbaz Sahi was the focal person of the visit and he put his tireless efforts to make it a successful visit. Department of Computer Science (DCS) at NTU will be the first department in the Faisalabad region to get its BS(SE) program accredited.

MoUs and Collaboration

MoU between NTU and Uludag University, Turkey

Prof. Dr. Tanveer Hussain, (Rector; NTU) visited Uludag University, Turkey. Prof. Dr. A.Saim KILAVUZ, (Rector; Uludag University) welcomed him. A MoU was signed between NTU and Uludag University for faculty mobility and students exchange program under Erasmus and Mevlana Exchange program. The MoU will offer opportunities to both parties to exchange six students from textile for one term (Undergraduate 02, Graduate 02 & PhD 02) and 04 textile faculty members for two weeks to raise their professional and technical skills.



MoU between NTU and Bursa Technical University, Turkey



Prof. Dr. Tanveer Hussain, (Rector; NTU) visited Bursa Technical University, Turkey. Mr. Arif Karademir, (Rector; Bursa Technical University) welcomed him. A MoU was signed between NTU and Bursa University for faculty and students exchange program under Erasmus and Mevlana Exchange program. The MoU will offer opportunities to both parties to exchange 12 students; 06 from Polymer/other Engineering and 06 from Computer Science (Undergraduate 02, Graduate 02 and PhD 02) for duration of four months and 04 faculty members (02 from Polymer/other Engineering and 02 from computer science) for two weeks to raise their professional and technical skills.

MoU between NTU and Bursa Technology Coordination and R&D Centre Inc. Turkey

A MoU was signed between NTU and Bursa Technology Coordination and R&D Centre Inc. (BUTEKOM) on behalf of Advanced Composite Material and Excellence Centre (IKMAMM) for cooperation in R&D, product development, design, training and testing activities. Both parties will be supported mutually in project partnerships, use of test and device infrastructures and helped in joint research opportunity for the students in graduate thesis studies and other compatible activities.



Academic Collaboration with University of Huddersfield, UK



A delegation from the University of Huddersfield, (UK) visited the Department of Computer Science, National Textile University Faisalabad. The purpose was to sign an agreement for the exchange of students at International level with the University of Huddersfield. The delegation included Prof. Dr. Ejaz Ahmad (International Relations Manager; Huddersfield) and Dr. Dastgir (Director; MSc Programs). The agreement will be beneficial for the students of NTU to get international academic exposure.

MoU between NTU and Intellectual Property Association of Pakistan

National Textile University and Intellectual Property Association of Pakistan (Punjab Zone) have entered into a Memorandum of Understanding (MoU) for the collaboration on the basis of reciprocity related to intellectual property services, research and internship opportunities; where each of the parties may be responsible for the efficient implementation of the activities agreed. The ceremony was held on May 08, 2019 at Seminar Room NTRC. MoU was signed by Dr. Ahsan Nazir, (Director; ORIC-National Textile University) and Mr. Nabeel Ali, (Executive Director; IPAP Punjab Zone).



MoU between NTU & NIET University, Uzbekistan

The National Textile University (NTU) inked a Memorandum of Understanding (MoU) with NIET University, Uzbekistan, on September 24, 2019 for the exchange of Faculty and Students of both Universities. Professor Dr. Tanveer Hussain, (Rector; NTU Faisalabad) and Senator Odiljon Mamatkirimov, (Rector; NIET University Uzbekistan) signed the MOU. A delegation of 22 members from NIET University Uzbekistan, which comprised of the Rector, Mr. Odiljon and Vice-Chancellor, Mr. Avazbek Obidov, Dean of Faculty Mr. Umarjon Melibaev, Mr. Mansurjon Mansurjon, Specialist of Foreign Languages NIET reached Faisalabad from Uzbekistan to sign this MoU whereas the worthy Rector of NTU, Prof. Dr. Taveer Hussain was assisted by Dr. Yasir Nawab, (Dean; Faculty of Engineering) Dr. Zafar Javed, (Director; Human and Social Sciences) and Mr. Salman Saif, (Registrar; NTU). Speaking on this occasion, Mr. Odiljon, (Rector; NIET University Uzbekistan) and Dr. Tanvir Hussain, (Rector; NTU, Faisalabad) briefed that after signing of the MoU between the two leading Universities, their faculty members and students would take the opportunity to higher studies in both countries and thus raise their professional and technical skills.



MoU between School of Leadership (SoL) to develop fellowship program

School of Leadership Foundation (SoL) and NTU signed a MoU and launched DICE (UK) fellowship program of British Council, on April 12, 2019. This MoU states to extend capacity building, mentoring and support within the economic system. SoL will also offer wide range of training modules related to strengthening of academia; the teachers, administration-management/staff and cater to the youth studying in the university. In addition to this, they also provide development programs for the young professionals who have recently embarked on their careers for the certification of diversified professional development.



Establishment of Compressed Air Engineering in Collaboration with Asian Institute of Industrial Air



A seminar on Fostering University-Industry Partnership Supporting Textile Industry was held at Circle Club, Faisalabad in collaboration with the Asian Institute of Industrial Air. The event was attended by distinguished CEOs from Textile Industry. A welcome address and a presentation on NTU Textile Innovations was given by Dr. Tanveer Hussain, (Rector; National Textile University, Faisalabad). The talk was followed by the presentation of Prof. Dr. Arshad Ali (CEO Asian Institute of Industrial Air) on Textile 4.0, the fourth industrial revolution. Mr. Imtiaz Ali Rastgar, Founder and Chairman of Rastgar Group, delivered a small talk on Cost Driver on Textile Productivity and Competitiveness. A representative from Gardner Denver, Mr. John Fyfe, gave his remarks on Invisible cost drivers: compressed air. MoU signing ceremony was held between NTU and the Asian Institute of Industrial Air. This partnership signifies the unique model where the best German international compressor brand will provide compressor equipments. Rastgar Group will support the installation and optimization of the facility for encouraging the University and Industry partnership. The Lab will be used for teaching the compressor related courses, Industry need-based training, and research related to advancement in compressor air technology. Asian Institute will provide funding support for applied research. The Pakistan Textile Sector has the opportunity to benefit from this state of the art facility. National Textile University thanks, Gardner Denver for supporting equipment, Mr. Imtiaz Rastgar for providing installation optimization support and Asian Institute of Industrial Air for making this Partnership a reality.



Belt and Road Alliance of International Textile Science & Technology (AITST)

NTU became a part of the belt and road alliance of International Science and Technology by signing an MoU. The purpose of this Memorandum of Understanding (MoU) is to set forth the framework of cooperation between China Textile Engineering Society (CTES) and organizations which agree to co-found the Belt and Road Alliance of International Textile Science & Technology (AITST) and comply with the constitution of AITST. It will build a platform for international exchange, promote scientific research cooperation, share innovation resources, improve the quality of joint training and enhance the capacity building of science and technology innovation in the textile industry so as to enable the sustainable development of the textile industry. The member of this alliance is not only the university but also industries, associations and NGOs. The focus will be technology and science in the industry-university cooperation.



Career/Job Placements

Recruitment Drive- Style Textile Ltd, Lahore

Style Textile is a well-known textile and apparel manufacturer, engaged in innovation and having leading exporters and supplies garments to the world renowned brands such as Nike, Adidas, Reebok, Hurley, Levis and Converse amongst the others. To hire the fresh engineers, HR Team of Style Textile visited NTU on April 18, 2019 to conduct on campus recruitment drive. Student Advisor Office, Mr. Mirza Mahmood Akhtar (Lecturer & Coordinator Job Placement; GMD) and Dr. Ali Afzal (Deputy Director; Student Advisor Office), assisted the HR team of Style Textile. After a brief introduction, a written test was conducted followed by the interviews for shortlisted candidates.



Recruitment Drive-MIDAS Safety Karachi Visited NTU



Midas Safety has more than 35 years of experience as a global manufacturer of Personal the Protection Equipments. Midas Associates have factories located throughout Asia, especially in Pakistan, Sri Lanka and Bangladesh. HR team of Midas Safety from Karachi visited NTU on May 03, 2019 in its recruitment drive to hire the fresh engineers to take forward the vision of Midas Safety. Final year students of Spinning, Textile Technology, Knitting and Garment Manufacturing participated in the test.

Recruitment Drive-Ahmad Jamal Textile Mills, Faisalabad

Ahmad Jamal Textile Mills is the dyeing and finishing facility for shirts and suiting fabrics and annually produces more than 25 million meters of finished fabric for variety of apparel end-uses. They need management trainee officers (MTOs) for their modern manufacturing facility located in Faisalabad. HR team of Ahmad Jamal Textile Mills visited and conducted interviews on May 07, 2019 to hire the fresh engineers of Processing department.



Fulbright Master's and PhD degree program



Advisor Students Office/Students Affairs organized an orientation/informational session for Fulbright Master's and PhD Degree Program. This informational session for the 2020 application at NTU for interested graduates & post-graduates was held on April 16, 2019. Ms. Mashal (Education USA Adviser) of USEFP (United States Educational Foundation in Pakistan) made a presentation to the potential candidates on the salient features of USEFP, guide them for Education USA's free advising services, higher education opportunities in the U.S along the requirement to apply for Fulbright Degree Program. The session ended with the participants further clarifying their concerns and queries regarding the Fulbright, GRE and the MPhil programmes.

ABN (Overseas Education) and IELTS Mock Test

Advisor Student Office in collaboration with Society of Spinning and TMM conducted an IELTS Mock Test for NTU students along with an awareness session for students on study abroad by ABN overseas education. The session guided the students on Entry Requirement Applications and Scholarship Deadlines.



Seminars/Workshops/Trainings

“My First Research Flight” was organized by Business Research & Development Society

A Seminar under the title “My First Research Flight” was organized by Business Research & Development Society (Faculty of Management Sciences). The honorable guest speaker was Dr. Muhammad Waseem Bari, (Assistant Professor at Government College University, Faisalabad). The main objective of the Seminar was to create awareness about the research-oriented works and to provide proper guidelines for the students who are stepping ahead in the domain of the research as new researchers. At the end of the seminar, Dr. Muhammad Zia-Ur-Rehman thanked the honorable guest to visit our prestigious institute.



Management Sciences Collaboratively Organized One-Day Training Session



Quality Enhancement Cell and Department of Management Sciences collaboratively organized one-day training session on “Improvement of Productivity through Quality Management Tools” on Apr 23, 2019 at National Textile University, Faisalabad. The resource person was Mr. Waqar ul Hassan Gilani, (Assistant Manager; Honda Atlas Cars (Pakistan) Ltd. Lahore). The session was interactive and beneficial for the participant students of various disciplines including the students of Management Sciences, Polymer Engineering and Textile Engineering. Students clarified their queries regarding Value Stream Mapping and other tools of quality implemented in the industry. During the session Dr. Osama Nasim Mirza, (Dean; FMS) Dr. Sajjad Baig, (Assistant Professor; FMS) Mr. Liaqat Ali (Chairman; FMS) and Engr. Muhammad Haroon, (Assistant Director; QEC) were also present. At the end of the session a souvenir was presented to Mr. Waqar by (Dean; FMS).

Workshop on Composite Material Fundamentals Testing, Fabrication, Design and Analysis

Composite materials are emerging as a potential replacement of the metal parts in various application areas such as automobiles, sports, civil, protection and aerospace industry. A two days workshop on fundamentals of composite materials was held at National Textile University, Faisalabad from August 26-27, 2019. The goal of the workshop was to give theoretical and hands-on training of the subject and give awareness regarding composite fabrication, testing, and analysis. Dr. Yasir Nawab, (Dean; FET/Director; NCCM) the key resource person, delivered a talk on Composite Fabrication techniques and Thermal testing. The first day activities included fabrication of composite samples by the participants using hand lay-up and vacuum infusion techniques.



Importance and Requirement of MS/Ph.D programs review



Quality Enhancement Cell organized an awareness session on the “Importance and Requirement of MS/Ph.D. programs review” for the focal persons of all MS/Ph.D. programs at National Textile University. Engr. Muhammad Haroon (Assistant Director, QEC) was the presenter for the training session. All members of QEC participated in the session.

Workshop on Assessment Methodologies and Rubrics



Quality Enhancement Cell of National Textile University organized an in-house hands-on training workshop on the “Assessment Methodologies and Rubrics” on Wednesday, July 24, 2019 in the Video Conference Room of the University under the supervision of Prof. Dr. Zahid Rizwan (Dean FOS & Director QEC). All HODs and members of Faculty of Engineering and Technology attended the workshop. In the first session, Dr. Yasir Nawab (Associate Professor and Director; FET) and Dr. Abher Rasheed, (Associate Professor; FET) gave comprehensive overview of the Assessment Methodologies practiced in the University and shared the 'rubrics' developed by FET for assessment based on Outcome Based Education (OBE) system. It was an interactive workshop and detailed discussions were carried out on assessment rubrics for Final Year Projects. A hands-on activity to discuss and fill in the developed rubrics was performed by dividing the participants in groups. In the second session, Dr. Naseer Ahmad (Assistant Professor) explained in detail the grade sheet developed as per OBE for assessment of students.

Awareness seminar on Road Safety by City Traffic Police-NTU Road Safety Club

NTU Road Safety Club arranged an awareness seminar on the road safety by Waqas Ali Warich (In-charge; Education Unit city traffic police, Faisalabad), Chief Guests Mr. Ghulam Mahmood Dogar (RPO; Faisalabad) and Mr. Ali Raza (SSP CTO Faisalabad) shed the light on the importance of road safety. At the end Convener of society “Mr. Farooq Jamal” paid special thanks to the worthy guests for their presence. Souvenir was presented to the worthy guest by the Rector NTU, Dr. Tanveer Hussain. Also, a Souvenir was presented to the Rector of university by Mr. Ghulam Mahmood Dogar (RPO; Faisalabad).



Lecture on the Future prospects of Spinning industry by Mr. Ayub Shah



Society of Textile Spinning invited Mr. Ayub shah (ED; Mahmood group) on April 13, 2019 as the Chief guest of the evening to share some wise words with the rest. He shed light on the Future prospects of Spinning industry. Students were motivated by listening to experiences from his immaculate career. STS is obliged to Mr. Ayub Shah for sharing some of his precious time with us.

NTU Participated in Education Expo 2019

National Textile University participated in “The News Education Expo” on July 06, 2019. It was organized by Jang Media Group in Royalton Hotel, Faisalabad. NTU Admission Office, Office of Graduate Studies and Advisor Students Affairs Office represented NTU at Education EXPO-19. The event attracted prospective students interested in desired academic programs. The EXPO helped the students to get counselling from the University professionals and representatives at the expo. It was a very useful activity for the academia as well as for the prospective students who were equipped with first hand information from all the institutions of the city under one roof.



Workshop on Smart Environmental Management Practices (SEMPs)



A Workshop on Smart Environmental Management Practices (SEMPs) was organized by Department of Weaving in collaboration with WWF-Pakistan. The topics discussed were “Smart Environmental Management Practices (SEMPs) in Textiles” by Mr. Kashif Gilani from Cleaner Production Institute, and “Energy Saving Opportunities in Textiles” by Arjmand Qayyum Ajmat from WWF-Pakistan. The workshop was very informative and it highlighted many environmental and industrial problems in conservation of natural resources and their efficient use. Latest Textile industry-based data was presented that highlighted key issues and their solutions. The workshop was appreciated by twenty-nine faculty members from Faculty of Engineering and Technology.

Seminar on “How to Professionally Grow in Textile Industry” by Spinning Society

Society of Textile Spinners (STS) arranged a seminar on “How to Professionally Grow in Textile Industry” on April 30, 2019. Mr. Ashfaq Ahmad was the resource person for this event with the assistance of Miss. Kiran Shehzadi from Department of Management Sciences. Mr. Ashfaq Ahmad is a business graduate of 1998 and specializes in marketing. He started his career in marketing and worked with some renowned groups before taking training sessions from abroad. Some of his most prestigious customers include JC Penny, Wall-mart, K-Mart, Nike, Levis and many more. Currently, he is working voluntarily and heading different training sessions at different universities. He shared some golden rules for the achievement success and assured of the idea that if anyone is determined then sky is the limit. This proved a source of motivation for the students and was a fruitful session. STS is thankful to Mr. Ashfaq Ahmad for his wise words and Miss. Kiran Shehzadi for her assistance.



Formation of Industrial Advisory Board

The Department of Knitting constituted an Industrial Advisory Board and its meeting was held on June 20, 2019. The main purpose of this board is to gather all executives from different industries on one table to strengthen the industry-academia linkage. Dr. Nabeel Amin (Consultant Kay & Emms), Mr. Saqib Nisar (CEO SOCKOYE), Dr. Mushtaq Mangat (Director Modemo), Mr. Waseem Irfan (DGM Style Textile), Mr. Khawaja Musharaf (CEO; K.M. Ashraf & Sons), Mr. Yasir Rasool (DGM Outso) and all faculty members under the supervision of Dr. Hafsa Jamshaid attended the meeting on June 20, 2019 in the knitting department meeting room. Mr. Usman Ahmed (Lecturer) delivered the presentation to all the executives from the industries and highlighted the problems that were needed to be discussed.

The main agendas of meeting were the improvement in course specification, improvement in Lab practical, and interchanging of courses.



Institutional Performance Evaluation



Quality Enhancement Cell has organized a training session on “Institutional Performance Evaluation” for the institutional performance evaluation panel. Mr. Muhammad Naeem (Lecturer; DCS/Member; QEC) was the presenter for this training session. Prof. Dr. Zahid Rizwan (Director; QEC) along with QEC team members was also present in the session.

Important Events and Meetings at NTU

Complying with the Prime Minister's Monsoon Tree Plantation Campaign 2019



Complying with the Prime Minister's Monsoon Tree Plantation Campaign 2019, National Textile University (NTU) Faisalabad has actively participated in this National event with true spirit. The campaign was led by Prof. Dr. Tanveer Hussain, (Rector; NTU), along with Prof. Dr. Zahid Rizwan, (Dean; FOS) Mr. Salman Saif, (Registrar; NTU) Mr. Zabih ullah Khan, (Controller Examination; NTU) and Dr. Zulfiqar Ali Raza, (Chairman; Applied Sciences Department). More than 340 plants were planted, which include Mango Garden of 50 plants and 100 Jamun plants, within the University premises. The fruit trees would be a great support to attain a balanced ecosystem and a source of food and habitat for the birds. Moreover, 100 Pilkhan, 70 bakain, and 20 Barna plants were planted alongside the University boundary wall. These plants would not only keep the ambient temperature pleasant but also help to reduce air pollution and provide oxygen and cool shade. Keeping up the spirit, to fully support the Prime Minister's Plantation Campaign, the University also aims to plant Neem, Goldmore, and Jacaranda trees in the near future.

Department of Design effectively completed Courses Review Process

Department of Design, NTU successfully completed Bachelors of Fashion Design courses review process for Spring/Fall semesters 2019. For this purpose, an indigenous workshop for over 2 weeks was conducted that encompassed the reviewing and updating of the current course contents and learning outcomes. To successfully complete this workshop, various sessions were conducted. The meetings were chaired by Director FHSS; Dr. Zafar Javed in which various inputs were made by the members of faculty from July 15-19, 2019 and July 22-26, 2019. The aim of this workshop was to review all the courses of BFD and their contents with reference to Course Learning Outcomes. Additionally, courses were streamlined to avoid any ambiguity and repetitions between the course contents of similar courses.



10th meeting of Faculty Board of Studies (FBOS) of Faculty of Engineering & Technology



10th meeting of Faculty Board of Studies (FBOS) of Faculty of Engineering and Technology was held on July 4th, 2019 in the meeting room of National Textile University, Faisalabad. They discussed about the assessment methods and continuous quality improvement of programs offered by FET.

Annual Budget Meeting of Societies and Technical Activities for the year 2019-20

Advisor Students Office arranged a meeting on August 06, 2019 (Tuesday) to review the activities of the year 2018-19 regarding budget allocation and utilization by all the technical and extra-curricular societies of National Textile University. Furthermore, the budget for each society for the year 2019-20 was discussed with other agenda points in the meeting. The meeting was chaired by Dr. Amjed Javid, (Advisor Students), Mr. Zulfiqar Ahmad (Director Finance), and Conveners of all societies attended the meeting. The meeting ended with valuable suggestions to bring improvements in student's participation in academics and extra-curricular activities.



1st Cycle of Self-Assessment Process for Bachelor of Science in IT program



Quality Enhancement Cell (QEC) of National Textile University has completed the 1st Cycle of Self-Assessment Process for Bachelor of Science in Information Technology Program. The Assessment Team visited Department of Computer Science of the university for the Assessment of Bachelor of Science in Information Technology Program on April 30, 2019. They also interviewed faculty members of the department and students of the program and appreciated the current level of the academic program. Few observations were done and suggestions were given for improvement accordingly.

2nd Cycle of Self-Assessment Process for Ph.D. Computer Science program

Quality Enhancement Cell (QEC) of National Textile University meritoriously completed a three days Self-Institutional Performance Evaluation (IPE) visit from May 20-22, 2019. The IPE Panel was led by Dr. Zulfiqar Ali, (Associate Professor, Director; Graduate Studies and Research). Other panel members included (Dr. Sajjad Ahmad Baig, Assistant Professor, Director; Faculty of Management Sciences) Dr. Muhammad Asif, (Assistant Professor Chairman; Department of Computer Science) Dr. Muhammad Babar Ramzan, (Assistant Professor; Department of Garment Manufacturing). Dr. Muhammad Hashim (Assistant Professor, Department of Management Sciences). Muhammad Naeem was the Focal Person from QEC. The Facilitator Team for self IPE comprised of Mr. Muhammad Haroon Ejaz (Assistant Director QEC), Syed Arshad Abbas (Data Analyst; QEC) and Muhammad Usman (Office Assistant; QEC). The IPE Review Panel expertly reviewed all the documents according to the HEC's prescribed University Portfolio Report (UPR). Extensive cross questioning sessions were held and the focal persons answered them accordingly. The meeting was closed after compiling the findings and corrective actions were decided. An Audit Summary containing corrective actions and its implementation was prepared and a copy of the same will be sent to the Rector for his perusal and action. The record of the same was maintained by the QEC office accordingly.

3rd Cycle of Self-Assessment Process for MBA 3.5 program

Quality Enhancement Cell (QEC) of National Textile University has completed the 3rd Cycle of Self-Assessment Process for Master of Business Administration (MBA-3.5) Program. The Assessment Team visited the Department of Management Sciences of the university for the assessment of Master of Business Administration Program on April 30, 2019. During the visit, the Assessment Team evaluated the program by using HEC's prescribed Assessment Criterion and Recommendation Form. They visited departmental facilities like labs, library, and classrooms. They also interviewed faculty members of the department and students of the program and appreciated the current level of the academic program. Few observations and suggestions were given for improvement accordingly.



QEC effectively completed MS/MPhil and PhD Review Process for FY 2018-19



Quality Enhancement Cell (QEC) of National Textile University effectively completed a MS/ Mphil and PhD review process for FY 2018-19, on 25th June 2019, under the supervision of Dr. Zahid Rizwan (Director; Quality Enhancement Cell NTU). The Review Panel was led by Dr. Babak Mahmood (Associate Professor and Director; QEC of Government College University Faisalabad). The internal review committee included: Dr. Zulfiqar Ali (Associate Professor & Director GSR;) Dr. Yasir Nawab (Associate Professor & Dean FET;) Dr. Muhammad Asif Assistant Professor & Chairman CS Department. Engr. Muhammad Haroon, Assistant Director QEC, was the focal person of this activity. QEC team included Mr. Muhammad Naeem, Syed Arshad Abbas, Mr. Muhammad Usman. Dr. Babak expertly reviewed all the documents according to the HEC's prescribed Review Checklist and questioned the focal persons of all the concerned departments. The meeting was closed after compiling the Assessment Findings and Corrective Actions were decided. An Audit Summary was prepared and reported to Rector NTU and was kept as a record in QEC Office.

Participation in National and International Events

NTU Designers participated in Exhibition held at Faisalabad Medical University

"A picture is worth a thousand words". Color and brush stroke is the universal language of an artist to convey expression and feelings. Students of Department of Design, NTU communicated with their paintings in the exhibition held at Faisalabad Medical University. Variety of painting mediums like oil colors, acrylics, charcoals and watercolors were beautifully executed by the artists. All art works were specially praised by the vice chancellor of Faisalabad Medical University and other guests at the venue.



NTU Students Participated in Provincial Convention (Lahore) HEC



The Government is entrusted with the task of ensuring internal peace and security within the country. To promote the Peace, a National Youth Outreach Program by the name of Young Peace and Development Corps (YPDC) was launched by GOP and HEC which focuses on engaging youth in the development discourse and conflict resolution processes as a policy tool to guarantee socio-economic inclusiveness and a youth responsive approach to prevention of conflicts in Pakistan. The Government of Pakistan arranged Provincial Convention and recognized universities as a key player in the National Youth Outreach Initiative for its kick start program for the year 2019-20. Student representatives of all universities of Punjab were invited in the Provincial Convention upon nominations. Four students of NTU (high achiever) were selected for Positions of YPDC and attended the Provincial Convention held at University of Lahore on May 04, 2019.

Department of Knitting Presented its products in Texpo

Knitting department in collaboration with Pakistan Hosiery Manufacturing Association (PHMA) presented its products in Texpo at Expo center Lahore. A team from knitting department which included Mr. Ali Raza and Mr. Usman Ahmed, along with students, participated in exhibition. More than 300 companies hailing from 15 different countries exhibited their products and the latest technology in the Texpo. Textile products along with details of services which Department of Knitting provides to the knitting industry were displayed in the stalls.



Department of Design participated in University of Faisalabad



Department of Design participated in University of Faisalabad competition with full enthusiasm and passion. Students of Design department encompassed many categories of the competition and their performance was outstanding. Five products from design department were displayed in the category of product design out of which the product of Textile Waste Wall Art by Ms. Marwa and Ms. Sumbal (6th Semester, BTDT) got first position for the best product. The other product titled Artistic Bed Sheets for Teens by Ms. Shahnilla Irshad (8th Semester, BTDT) got second position. Mr. Furqan (3rd Semester, BVA) got first position in the category of Calligraphy Art, Ms. Suneela (6th Semester, BTDT) won first position in Painting and Mr. Junaid (6th Semester, BTDT) was honored as the best ambassador for the competition Tech Hawks Season 5.

Six Week-Skill Based Faculty Development Program

Ms. Asra Tariq (lecturer, Department of Polymer Engineering) and Mr. Hassan Iftikhar (lecturer, Department of Textile Engineering) participated in Six Week-Skill Based Faculty Development Program inaugurated on July 01, 2019 and concluded on August 09, 2019 at National Academy of Higher Education Commission HEC. In this first batch, 26 newly inducted faculty members from various institute across Pakistan participated. The program was with an emphasis on the principles and practice of effective teaching and research as the core capacities of a faculty member at institute and thus equip new faculty members with the strategies and tools to overcome the challenges of the learners and develop in students the critical thinking and practical skills demanded by the workforce. Keeping in view the need to have an all-round performance by faculty members, this program provided the essential knowledge, skills, and attitudes in three different themes viz. Teaching & Learning, Research, and University Governance and Leadership.



NTU Jacquard Designed Mufflers



Department of Knitting developed "Knitted Mufflers" in its Knitting Lab on electronic jacquard flatbed knitting machine. These mufflers are developed by knitting faculty and lab staff. NTU monogram is made by jacquard designing technique on these mufflers. APEX software from shima seiki is used for jacquard designing.

International Conference on Eco textile as Speaker

Dr. Hafsa Jamshaid C Text FTI participated as an invited speaker in International Conference on Eco-Textiles (ICET2019) combined with Young Scholar Forum which was scheduled between August 4th to August 6th at Jiangnan University in Wuxi, China. The theme of the conference (ICTE 2019) was on 'Sustainability and Eco-textiles'. She presented her work under the HEC funded project NRPU titled "optimization of performance and comfort properties of fire resistant knitwear". During the conference, she also chaired a session. Dr. Hafsa Jamshaid visited Engineering Research Center for Knitting Technology of Jiangnan University and met professor Pibo Ma, Zhe Gao and other faculty members for mutual collaboration on research and exchange programs.



Won Cash Prize in 3rd Knit to Achieve Competition 2019



Ms. Marwa Nisar and Ms. Sumbal Malik (BTDT, 6th Semester) won third position in 3rd Knit to Achieve Competition 2019 hosted at National Textile University. Designers worked on the theme of renowned painting Starry Nights painted by the Post-impressionist painter Vincent van Gogh and replaced the rhythmic brush strokes of great master with the Textile waste materials. The Textile painting witnessed the whirling clouds, shining stars, and a bright crescent moon. The setting is the one in which viewers can easily relate to Van Gogh's swirling sky directing the viewer's eye around the painting. Some other Projects from Design Department like hand knitted home textile articles, knitted fabric bags and accessories were also displayed at the competition.

Achievements and Awards

Department of Design completed the DICE Shark Textile Funded Projects

Graduates from Department of Design successfully completed the Dice Shark Textile funded projects. The project of camouflage was done by Mr. Faiz Haider Naqvi, to design a jacket for hunters and design home textile product with the same theme line. He developed camouflage inspired designs and textures from the original photography of the beautiful natural textures across Pakistan. The project was funded by Arshad group. The other project was done by Ms. Laiba Shoukat in which Archroma Industry funded for the research work to develop anti electric gloves inspired by the illusion patterns and designs.



NTU received Accreditation Status by 'The Textile Institute, Manchester'



Three-degree programs offered at National Textile University are now accredited by 'The Textile Institute, Manchester'. National Textile University applied for the accreditation which was assessed by a panel of experts and ratified by the Professional Qualifications Committee. The accreditation is offered for five years.

Following courses received the accreditation:

1. BS Textile Engineering
2. BS Textile Engineering Technology
3. BS Polymer Engineering

Accreditation by The Textile Institute adds high value to these courses offered by NTU as this helps in maintaining the educational standards between different countries and specializations and establishes international benchmark. It also provides an indication of program quality and excellence. This accreditation provides further opportunities for graduates to take up textiles-based careers.

1st Position in All Pakistan Naat Nigari Competition and 3rd Position in Ghazal Category

Jamshaid Tabish, an exceptional and talented member of NTU Iqbal Society, participated in an event "Gumaan" poetry-category held at in NFC Faisalabad and won 1st position in All Pakistan Naat Nigari Competition through his mastery in words expression. Moreover, he got 3rd position in Ghazal Category. "Gumaan" is a 1st All Pakistan event of NFC where 30+ universities took part and competed in different literary competitions.



Mr. Abdul Moeed got Interloop Turkish Scholarship Award



Mr. Abdul Moeed (student of BS Polymer Engineering) got Interloop Turkish Scholarship Award for Summer Internship at Bursa Uludag University, Turkey

University of Huddersfield Announces Scholarships for the Students of NTU

Available for applications from National Textile University.

Available for any course under the Huddersfield Business School, School of Human and Health Science and School of Computing and Engineering.

Scholarship is a total of £4,000 reduction in tuition fees for every year of study on campus in the UK.

The scholarship excludes any placement years.

The scholarship cannot be combined with any other scholarship offered by the University of Huddersfield.

Scholarship applies to any course in the Huddersfield Business School, School of Human and Health Science and School of Computing and Engineering.

Applicants must be a national and domiciled in Pakistan, studying at National Textiles University.

The scholarship applies to advanced entry into year 2 or year 3 of a bachelor's degree which has been approved by the University of Huddersfield and the University above. The scholarship applies to all Master's/postgraduate taught programmes at the University of Huddersfield (excludes Master's by Research, PhD, Doctor of Education and the Doctor of Business Administration).

Applicants must meet the minimum entry criteria for their chosen programme of study to be eligible.

Applicants who are in receipt of any donor funding or government/company sponsorships will not be eligible for this scholarship.

Applicants will be considered eligible on the basis of their application form to the University of Huddersfield and scholarships will be awarded automatically. The submission of falsified or counterfeit documents and or qualifications will disqualify the applicant from consideration and an offer to the University. Incomplete applications will not be considered.

Scholarships can be awarded for September and January start of 2019/2020, 2020/2021 and 2021/2022 entry points.

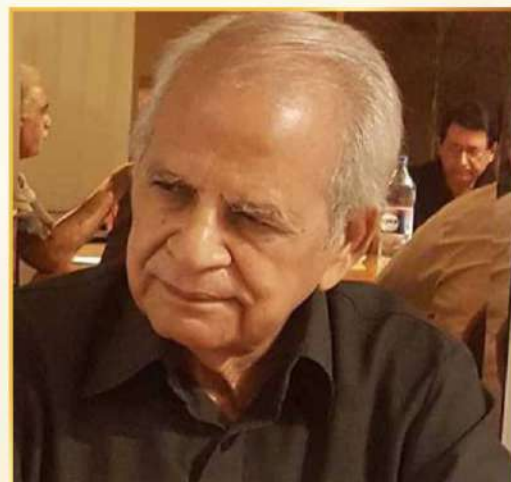
The scholarship is available for new applicants to the University only.

To find out more, you can email us at international.office@hud.ac.uk

Department of Weaving Introduces Project Excellence Award

Department of Weaving, National Textile University introduced Project Excellence Award.

This award was given to Weaving Industry for bringing extraordinary services in respect of profitability, creativity, productivity, environmental solutions and innovation. Mr. S.M. Qutab was awarded "Weaving Project Excellence Award" for his development of fabric for Abrasive Coatings that brought extra ordinary profitability to the weaving industry. The project selected for the Project Excellence Award was decided by the committee. The project was introduced by Dr. Syed Talha Ali Hamdani at Weaver's Night 2019. More than 30 industries were invited to compete in this award from which the project of Mr. S. M. Qutab stood best and won the title. The award was presented by the Rector of National Textile University, Prof. Dr. Tanveer Hussain.



First Position in Urdu Serious: TechHawk Declamation Contest



Malik Muzamil Naz, is a genuine debater and an active member of NTU Debating Club. He constructed solid arguments and got first position in Urdu serious in TechHawk declamation contest held at the University of Faisalabad on April 25, 2019.

Student Activities and Industrial Tours

Certificate Distribution Ceremony–Societies Office Bearers 2018-19



Advisor Students Affairs Office under the supervision of Dr. Amjed Javid (Advisor Students) has arranged the recognition ceremony for the successful completion of activities 2018-19 for all NTU societies. Conveners of societies were also there to encourage their respective society office bearers. Dr. Tanveer Hussain (Worthy Rector) was the Chief Guest of the ceremony. A journey of activities 2018-19 of all NTU societies was presented which included as campus initiatives and recreational measures of each society. Presidents of the societies shared their experiences and thanked to the university for providing them the opportunity where they utilized their best potentials during the university life. Dr. Tanveer Hussain addressed and appreciated the efforts of Advisor Students Office. He also encouraged the conveners of the societies who are the master minds behind every activity and event, especially appreciated them for their keen interest and works for the societies. At the end all Presidents and Vice Presidents were awarded with certificates by Worthy Rector and Advisor Students.

Society of Textile Spinners arranged an Annual get together of Spinners

Keeping the tradition alive, Society of Textile spinners arranged an annual Spinning get together on April 13, 2019. This gathering included not only the students but also the seniors from industry. This gathering gave the industry seniors a chance to walk down the memory lanes and rejoice the time they have spent in NTU as they are our vital assets who are now serving in the textile industry. Guests were warmly welcomed by Yarn Manufacturing Department. Guests were entertained with lively performances by junior students and dinner was served at the end. Shields were presented to industries by Yarn Manufacturing Department for their endless assistance. Shields were also distributed among students for their efforts. Chief Guest to this memorable evening was Respected Mr. Ayub Shah, (Executive Director; Mehmood Group Multan). STS is thankful to everyone for their participation and the students for their efforts in making this event successful.



Society of Textile Spinners invited Mr. Ralf Müller Sales Manager Trützschler



Society of Textile Spinners invited Mr. Ralf Müller, (Sales Manager; Trützschler) on April 13 2019, and one of the official sponsors of the event, on Annual Spinners Gathering to have an interactive session with the seniors from Spinning Industry and other students. Mr. Müller briefly introduced the history of spinning machinery before introducing latest spinning technology invented by Trützschler. Mr. Müller has been visiting Pakistan for the last ten years and was overwhelmed to be invited to this event, which included some of the very experienced people from the field of spinning industry. Mr. Müller was of the idea that whenever some new technology has been introduced, these people have been very welcoming in adopting it. STS is very much obliged to Mr. Müller, the representative of one of the leading textile machinery manufacturers to honor this event with his presence and providing sponsorship.

“Creativity Exemplified” A Unique Display of Glass Mosaics

Students of Textile Design (6th Semester) displayed their impressive Mosaic Art pieces at the Department. Display featured more than 30 art pieces. Students expressed their passion for colors and glass most innovatively in the technique of Mosaic. The variety of themes on display were astounding. It ranged from abstract to Islamic calligraphy, inspirations from Ottoman architecture to Punjabi cultural influences, natural landscapes to marine life. The whole idea behind this display was to boost student's confidence and to encourage them to freely explore realms of their creativity. They were overjoyed to see their art pieces being appreciated this way.



Image Garment (Pvt.) Ltd to develop Sustainable Apparel and Home Textile Products



NTU Department of Design is fully contributing to educate the youth with Sustainable Design approaches, zero waste solutions and no carbon foot prints. Image Garment Ltd, Faisalabad collaborated with Design department to strengthen and work out on these solutions. Students of 6th semester TD designed wide range of apparel and home textile products after research and development from the left over knitted fabric provided by Image Garment. Left over fabric or fabric waste during cutting, patterning or sewing were smartly used to make new sustainable products ranging from cape shawl, T-shirt, hand bag, cushions, rug, puffy hoods, travelling kit, kid's garments and travelling bags.

Final year Students of Spinning Department visited Kohinoor Textile Mills

Society of Textile Spinners arranged an industrial tour to Kohinoor Textile Mills Gujar Khan Division on May 4, 2019. Seniors and Staff members of Kohinoor Textile Mill warmly welcomed the students. Students were given a short introduction of Kohinoor Group and then they visited all the departments of Mill. Students learned about the spinning process running in the mill and were acquainted with the state of the art technology Kohinoor Textile Mill is equipped with. This visit proved very fruitful to the students. After the visit, students were also entertained with lunch. The faculty members in tour were Mr. Tehseen Ullah (Lab Engineer; DMT).



Blood Donation Camp in Collaboration with Shoukat Khanum Hospital



NTU Health and Blood Donation Society Arranged a Blood Donation Camp in collaboration with Shoukat Khanum Memorial Cancer Hospital on May 02, 2019. Core purpose of this event was to collect blood for cancer patients, which is crucial in current situation due to shortage of blood. This situation has already been examined during NTU-H&BDS visited to SKMH. Worthy Rector Dr Tanveer Hussain, staff members, faculty and NTU students showed immense response. More than 80 persons contributed in this noble cause and are willing to do more in the future. All the donors were pre-examined through Hemoglobin (HB) test to check the normality to donate blood by the experts of SKMCH.

MS Finance Student's visit to Pakistan Stock Exchange

Dr. Muhammad Zia-ur-Rehman (Head of Finance) arranged a tour of the students of MS Finance to Pakistan Stock Exchange Lahore on May 3, 2019. It was a wonderful experience for the students to visit such a place for the enhancement of the practical knowledge and professional expertise in the domain of Finance.



Takrarr' 19: Second Pakistan Bilingual Declamation Contest

NTU Debating Club arranged Takrarr'19, second All Pakistan bilingual declamation contest on March 12, 2019. It was a competition to test who is the best in the art of oratory. Different institutions including Punjab university, GC university Lahore, University of Agriculture Faisalabad and many other institutions from across the country participated in both Urdu and English categories. The session was chaired by the President, of NTU Debating Club, Muhammad Afraz Alam. A very well-known jury panel adjudicated the event including GM Shah, Fahad Waseem, Hamas Hameed, Amna Hussain Razi and Muhammad Abubakar. Ms. Asma (Convener; NTU Debating Club) expressed her gratitude to the jury members and participants. Registrar Mr. Salman Saif, Dr. Hafsa, Dr. Asif Malik, Mr. Waqar Ahmad, Mr. Jaleel, and Ms. Nadia distributed shields among the winners and souvenirs were presented to the adjudication panel. Team trophy was won by GCU Faisalabad.

The winners of English category were

- 1st position: Ali Hussain (GCU Lahore)
- 2nd position: Mahabashir (GCU Faisalabad)
- 3rd position: Chasheen (GCU Faisalabad)

And the winners of Urdu category were

- 1st position: Arsalan Haider (GCU Faisalabad)
- 2nd position: Shamas (university of Agriculture Faisalabad)
- 3rd position: Fahad-ul-Bashir (GCU Lahore)



Annual Sports Prize Distribution Ceremony at NTU



The annual sports prize distribution ceremony of inter-departmental sports 2019 was held on June 19, 2019 at NTU. Prof. Dr. Tanveer Hussain, (Rector NTU) graced the event by awarding prizes to the winners and runners up of the sport contests.

Mr. Shoaib Amin (15-NTU-1347) from the Department of Management Sciences was awarded Best Player of the Year-2019.

Textile Premier Cricket League Season-IV 2019

The fourth Season of the Textile Premier Cricket League was held at NTU from April 18, 2019, to May 03, 2019. Total 25 matches were played between 8 different teams. The Final match was played between NTU Dare Devils and NTU Panthers. Textile Premier League's title was won by NTU Dare Devils. Dr. Amjad Javid (Advisor Students) and Mr. Waqar Ahmad (Deputy Director Sports) inaugurated the final match ceremony. They were introduced to both Teams. While Mr. Imran Ali Gill (Sports Officer) and Mr. Pervaiz Akhtar (Sports Officer) distributed prizes among the players.



Testing Services Offered by NTU

FIBER TESTING	STANDARD TEST METHOD
Single Fiber Strength test	ASTM D 3822
Fiber Composition of Textiles (Quantitative)	AATCC 20A
Fiber Composition of Textiles (Qualitative)	AATCC 20
Cotton Fineness	ISO 2403, ASTM D 1448-11
Cotton Fiber Length and Length Uniformity	ISO 6989, ASTM D 5103-7
Cotton Breaking Strength by Pressley Tester	ISO 3060, ASTM D 1445-12
Cotton Trash Content	ASTM D 5867-5
Fiber Moisture Content	ASTM D 2495-12
Cotton Fiber (HVI) Tests	ASTM D 5867-12
YARN TESTING	STANDARD TEST METHOD
Yarn Unevenness (Uster-5)	ASTM D 1425
Linear Density by Skein Method	ASTM D 1907, ISO 2060
Linear Density by Short Length Method	ASTM D 1059
Tensile Properties of Single Yarn	ASTM D 2256, ISO 2062
Lea Breaking Strength	ASTM D 1578, ISO 6939
Twist by Contraction Method	ASTM D 1422, ISO 17202
Twist by Direct Method	ASTM D 1432, ISO 2061
Classification of Yarn Faults	Lab Developed
Yarn Crimp and Yarn Take-up	ASTM D 3883-4
Yarn Type Analysis	ASTM D 3887-4
FIBRIC TESTING	STANDARD TEST METHOD
Fabric Width	ISO 22198, ASTM D 3774
Fabric GSM	ISO 3801, ASTM D 3776
Pilling Resistance by Martindale Tester	ISO 12945-4, ASTM D 4970-12
Pilling Resistance by ICI Method	ISO 12945-1, BS 8479
Random Tumble Pilling	ISO 12945-3
Abrasion Resistance	ISO 12947-2
Tearing Strength by Elmendorf Tester	ISO 12937-1
Bursting Strength of Fabrics	ISO 12938-2
Breaking Strength by Grab Method	ISO 13934-2
Wrinkle Recovery Test	AATCC 66
Dimensional Stability to Washing	ISO 6330/AATCC 135S
Skew Change (After Washing)	AATCC 179S
Smooth Appearance (After Washing)	AATCC 124
Soil Release of Fabric	AATCC 130
Color Evaluation by Spectrophotometer	AATCC Evaluation Procedure 6
Breaking Strength by Strip Method	ISO 13934-1
Seam Strength	ASTM D 1683
Weave and Design of Fabric	ASTM D 3775
Gauge of Knitting Machine	Lab Developed
Courses and Wales of Knitted Fabric	Lab Developed
Thickness of Fabric	ISO 5084, ASTM D1777
Bow and Skew in Fabric	ASTM D 3882
Color Fastness to Sea Water	ISO 105-E02
Color Fastness to Sea Water	ISO 105-E03
Dye-ability Test	Lab Developed
Method of Color Fastness to Perspiration	ISO 105-E04
Color Fastness to Washing	ISO 105-C01,2,3,6/ AATCC 61
Color Fastness to Dry Cleaning	ISO 105-D01
Color Fastness to Light	ISO 105 B02,B04 / AATCC 16.3
Color Fastness to NaClO Bleach in Home	AATCC 188
Color Fastness to Crocking	ISO 105 X12, AATCC 08
Absorbency of Textiles	AATCC 79
Fault in Cloth	Lab Developed
Blend Ratio of Fabric (2 Components)	AATCC 20, 20

Aidentification of Yarn/Fabric	Lab Developed
Percentage of Yarn in Fabric (per side)	Lab Developed
Seam Strength Test	ISO 13935-2, ASTM D 683
TESTING OF COMFORT PROPERTIES OF TEXTILE FABRICS	STANDARD TEST METHOD
Thermal Properties of Fabric (Sweat Guard Hotplate)	ISO 11092
Water Vapor Permeability (Sweat Guard Hotplate)	ISO 11092
Thermal Properties of Fabric (Permetest)	ISO 11092
Water Vapor Permeability (Permetest)	ISO 8096
Water Vapor Permeability (Standard Room Conditions)	ISO BS 720
Air Permeability Test	ISO 9237, ASTM D 737
Fabric Touch Properties (Fabric Touch Tester)	Lab Developed
Fabric Stiffness	ASTM D 4032
Moisture Management of Textiles (MMT)	AATCC 195
Drying Rate Test	AATCC 199
Fabric Drape Test	BS 5058
Kawabata Bending Test	Kawabata
Kawabata Compression Test	Kawabata
Kawabata Surface Test	Kawabata
Kawabata Shear Test	Kawabata
Kawabata Thermal Test	Kawabata
PROTECTIVE TEXTILES TESTING	STANDARD TEST METHOD
Vertical Flammability Test	ASTM D6413
Limiting Oxygen Index Test	ISO 4589-1, ASTM D2863
Static Charge Test (Conductivity Tester)	BS EN 1149-1
UV/Sun Protection Factor Test	AATCC 183
Water Repellency Test (Spray Method)	AATCC 22
Water Resistance of Fabric (Hydrostatic Head Tester)	ISO 811, AATCC 127
Antimicrobial Test Qualitative	AATCC 147
Antimicrobial Test Quantitative	AATCC 100
ANALYTICAL TESTING	STANDARD TEST METHOD
X-Ray Diffraction (XRD)	Standard Protocol
Scanning Electron Microscopy (SEM)	Standard Protocol
Optical Microscopy	Standard Protocol
Particle Size Analysis (Zeta Sizer)	Standard Protocol
UV-Vis Spectroscopy	Standard Protocol
UV-Vis-NIR Spectroscopy	Standard Protocol
Fourier Transform Infrared Spectroscopy	Standard Protocol
Electro-Kinetic Potential	Standard Protocol
Energy Dispersive Spectroscopy (EDX)	Standard Protocol
Differential Scanning Calorimetry (DSC)	ASTM D 3418
COMPOSITE TESTING	STANDARD TEST METHOD
Dynamic Mechanical Analyser	ASTM D 4065
Thermogravimetric Analyser	ASTM E 1131
Thermomechanical Analyser	ASTM D 1545
Resistance to thermal transmission	ASTM E 1530
Dilatometer	ASTM E 831
Rheometer	Standard Protocol
Drop Weight Impact Test	ASTM D 7136
Pendulum Impact Test	ISO 179, ISO 180
Melt Flow Indexer	ASTM D 1238
Universal Testing Machine	ASTM D 3039, ASTM D 7264
HAZARDOUS MATERIALS TESTING	STANDARD TEST METHOD
GCMS Test for Hazardous Materials	ISO/DIS 21084, ISO 18254-1
HPLC Test for Hazardous Materials	ISO 14362-1
Atomic Absorption Spectroscopy	Standard Protocol
Formaldehyde Testing	Standard Protocol