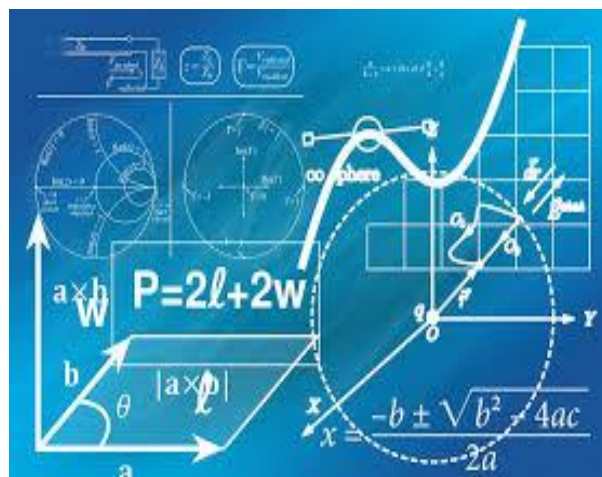
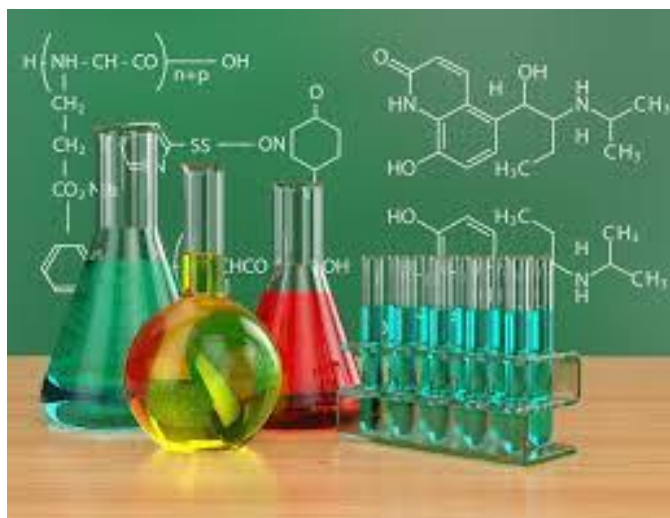




Annual Report 2017

Department of Applied Sciences



Compiled by Dr. Nadeem Nasir
National Textile University Faisalabad

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1 Academic

1.1 Full time faculty members

Sr.#	Faculty Member Name	Designation	Qualification
1	Dr. Muhammad Tahir Hussain	Professor	PhD in Chemistry
2	Dr. Zahid Rizwan	Professor	Post-Doctorate in Physics
3	Dr. Zulfiqar Ali Raza	Associate Professor	PhD in Chemistry
4	Dr. Muhammad Tahir Saddique	Assistant Professor	PhD in Chemistry
5	Dr. Shazia Muzaffar	Assistant Professor	PhD in Chemistry
6	Dr. Nadeem Nasir	Assistant Professor	Post-Doctorate in Physics
7	Dr. Muhammad Imran Yousaf	Lecturer	PhD in Physics
8	Dr. Muhammad Tariq Jan	Assistant Professor	PhD in Physics
9	Dr. Muhammad Arshad	Assistant Professor	PhD in Mathematics
10	Dr. Shahid Hussain Arshad	Assistant Professor	Post-Doctorate in Mathematics
11	Dr. Umber Shaikh	Assistant Professor	PhD in Mathematics
12	Mr. Muhammad Aslam	Lecturer	M.Phil Physics
13	Mr. Naseer Ahmad	Assistant Professor	M.Phil Statistics
14	Mr. Saeed Ahmad	Lecturer	M.Phil Statistics
15	Mr. Muhammad Zeshan	Lecture	M.Phil Mathematics
16	Mr. Sameer Munir	Lecturer	M.Phil Mathematics
17	Mr. Yasir Nadeem Anjum	Lecturer	M.Phil Mathematics

2 Faculty on Higher study

Sr.#	Faculty Member Name	University / Degree	Country
1	Mr. Yasir Nadeem Anjum	PhD Shanghai University	China

3 Research product development and commercialization

3.1 Research Articles

1. Zahid Rizwan, Nor Kamilah Sa'at, Azmi Zakaria "Optical characterization of as-deposited and air-annealed CdS film grown by CBD technique" *Journal of Ovonic Research* Vol. 13, No. 5, September - October 2017, p. 283 - 289
2. Raza ZA, Siddque A and Mohsin M "Multi-performance enhancement of knitted wool fabric with citric acid: an eco-compatible cross-linker" *Journal of Natural Fibers* (Published online). DOI: 10.1080/15440478.2017.1302383 (2017).
3. Ahmad N, Kamal S, Raza ZA and Hussain T "Multi-objective optimization in the development of oil and water repellent cotton fabric based on response surface methodology and the desirability function" *Materials Research Express* 4, 035302. DOI: 10.1088/2053-1591/aa5f6a (2017).
4. Siddique A, Hussain T, Ibrahim W, Raza ZA, Abid S and Nazir A "Response surface optimization in discharge printing of denim using potassium permanganate as oxidative agent" *Clothing and Textiles Research Journal* 35: 204-214 (2017).
5. Masood R, Hussain T, Miraftab M, Ullah A, Raza ZA, Areeb T and Umar M "Novel alginate, chitosan and psyllium composite fiber for woundcare applications" *Journal of Industrial Textiles*. 47: 20-37 (2017).
6. Raza ZA and Anwar F "Fabrication of chitosan nanoparticles and multi-response optimization in their application on cotton fabric by using a Taguchi approach" *Nano-Structures & Nano-Objects* 10: 80-90 (2017).
7. Zahra N, Raza ZA and Mahmood S "Effect of salinity stress on various growth and physiological attributes of two contrasting maize genotypes" *Brazilian Archives of Biology and Technology* (Published online): vol:59, iss: Agric. (2017).
8. Muhammad Aslam, Mazhar Ali Kalyar and Zulfiqar Ali Raza, "Fabrication of reduced graphene oxide nanosheets doped PVA composite films for tailoring their opto-mechanical properties", *Applied Physics A*, Vol. 6, No. 123, (2017), pp.123
9. Muhammad Aslam, Mazhar Ali Kalyar and Zulfiqar Ali Raza, "Graphene oxides nanosheets mediation of poly(vinyl alcohol) films in tuning their structural and opto-mechanical attributes", *Journal of Material Science: Materials in Electronics*, Vol. , No. , (2017), pp.
10. K Ali, Tariq Jan, J Iqbal, I Ahmad, D Wan, SZ Ilyas, "Structural, magnetic and electromagnetic wave absorption properties of WO₃-CuFe₂O₄: A novel nanocomposite", *Journal of Materials Science: Materials in Electronics*, Vol. 28, No. , (2017), pp.
11. K Ali, J Iqbal, Tariq Jan, I Ahmad, D Wan, I Ahmad, "Influence of NiO concentration on structural, dielectric and magnetic properties of core/shell CuFe₂O₄/NiO nanocomposites", *Materials Chemistry and Physics*, Vol. 195, No. , (2017), pp.
12. Kashif Ali, Javed Iqbal, Tariq Jan, Ishaq Ahmad, Dongyun Wan, Ali Bahadur, Shahid Iqbal, "Synthesis of CuFe₂O₄-ZnO nanocomposites with enhanced electromagnetic wave absorption properties", *Journal of Alloys and Compounds*, Vol. 705, No. , (2017), pp.
13. Kashif Ali, Javed Iqbal, Tariq Jan, Dongyun Wan, Naeem Ahmad, Ishaq Ahamd, Syed Zafar Ilyas, "Structural, Dielectric and Magnetic Properties of SnO₂-CuFe₂O₄

Nanocomposites", Journal of Magnetism and Magnetic Materials, Vol. 428, No. , (2017), pp.

14. Kashif Ali, Javed Iqbal, Tariq Jan, Muhammad Naeem, Ishaq Ahmad, Dongyun Wan, "Enhancement of microwaves absorption properties of CuFe₂O₄ magnetic nanoparticles embedded in MgO matrix", Journal of Alloys and Compounds, Vol. 696, No. , (2017), pp.
15. Fazal Abbas, Javed Iqbal, Qaisar Maqbool, Tariq Jan, Muhammad Obaid Ullah, Bushra Nawaz, Mudassar Nazar, M. S. Hussain Naqvi, and Ishaq Ahmad, "ROS mediated malignancy cure performance of morphological, optical, and electrically tuned Sn doped CeO₂ nanostructures", AIP ADVANCES, Vol. 7, No. , (2017), pp.
16. Faisal Mehmood, Javed Iqbal, Tariq Jan, Qaisar Mansoor, "Structural, Raman and photoluminescence properties of Fe doped WO₃ nanoplates with anti cancer and visible light driven photocatalytic activities", Journal of Alloys and Compounds, Vol. 728, No. , (2017), pp.
17. Faisal Mehmood, Javed Iqbal, Tariq Jan, Asma Gul, Qaisar Mansoor, Rani Faryal, "Structural, photoluminescence, electrical, anti cancer and visible light driven photocatalytic characteristics of Co doped WO₃ nanoplates", Vibrational Spectroscopy, Vol. 93, No. , (2017), pp.
18. Shagufta Riaz, Abdur Rehman, Munir Ashraf, Tanveer Hussain and Muhammad Tahir Hussain, "Development of functional alginate fibers for medical applications", The Journal of The Textile Institute, Vol. 108, No. 12, (2017), pp.12
19. Shazia Muzaffar, Ijaz Ahmad Bhatti, Mohammad Zuber, Haq Nawaz Bhatti, Muhammad Shahid, "Study of the UV protective and antibacterial properties of aqueous polyurethane dispersions extended with low molecular weight chitosan", International Journal of Biological Macromolecules, Vol. 94, No. , (2017), pp.

3.2 Conferences

1. Raza ZA, Munim SA and Saddique MT "Poly (lactic acid) based hydrogels and their renewable characteristics" 28th National and 16th International Chemistry Conference (November 20-22), at Department of Chemistry, Federal Urdu University for Arts, Science and Technology, Karachi-Pakistan, under the auspices of Chemical Society of Pakistan (2017).
2. Munim SA and Raza ZA "Fabrication of silver nanoparticles incorporated poly (lactic acid) composite film for potential electronic applications" 28th National and 16th International Chemistry Conference (November 20-22), at Department of Chemistry, Federal Urdu University for Arts, Science and Technology, Karachi-Pakistan, under the auspices of Chemical Society of Pakistan (2017).
3. Saddique MT, Aqib M, Munim SA, Raza ZA, Hussain MT and Naeem A "Development of chitosan based novel bio sorbents and removal of heavy metals from textile waste water" 28th National and 16th International Chemistry Conference (November 20-22), at Department of Chemistry, Federal Urdu University for Arts, Science and Technology, Karachi-Pakistan, under the auspices of Chemical Society of Pakistan. (2017).

4. Raza ZA and Abid S “Recent developments and potential applications of bacterial polyesters” 1st International Conference on Technical Textiles (November 9-10), at National Textile University, Faisalabad-Pakistan (2017).
5. Raza ZA and Anwar F “Chitosan mediated nanostructures for the development of contemporary textiles” 4th International Conference on Value Addition and Innovation in Textiles (March, 27-28), at National Textile University, Faisalabad-Pakistan (2017).
6. Rehman A, Khalid HF, Tehseen B, Khan WS, Bajwa SZ, Ihsan A and Raza ZA Biosurfactant functionalized metal nanoparticles: new material for enhanced antibiofilm/antiadhesive activity, In: 4th International Conference on Value Addition and Innovation in Textiles (March, 27-28), at National Textile University, Faisalabad-Pakistan (2017).
7. Asfandiyar Khan, Muhammad Tahir Hussain*, Huiyu Jiang, "Dyeing of silk fabric with natural dye from camphor (*Cinnamomum camphora*) plant leaf extract", 14th Asian Textile Conference (ATC-14), Venue: Institute of Textile and Clothing, Hong Kong Polytechnic University, Hong Kong, (2017).
8. Rafaquat Javed, Shaukat Ali, Muhammad Tahir Hussain*, Muhammad Atif and Sadia Noureen, "Comparative efficiency of triethanol ammonium sulfamate and toluene diisocyanate to improve the cross-linking of melamine formaldehyde resin for pigment prints on cotton fabric", International Conference on Technical Textiles (ICTT), Venue: NTU, Faisalabad, (2017).
9. Muhammad Jawad Ul Rehman, Muhammad Tahir Hussain*, Munir Ashraf, Asfand Yar Khan and Abdur Rehman, "Dyeing of wool fabric with natural dye extracted from leaves and stem bark of *Dalbergia sisso*", International Conference on Technical Textiles (ICTT), Venue: NTU, Faisalabad, (2017).
10. Munazza Maqbool, Shaukat Ali, Muhammad Tahir Hussain*, Muhammad Atif, Sadia Noureen, Shahid Adeel, "Functionalization of cotton fabric imparting mosquito repellency, uv protection and antimicrobial potential using seven selected plants", International Conference on Technical Textiles (ICTT), Venue: NTU, Faisalabad, (2017).
11. Zahid Rizwan, Yasir Nawab, Muhammad Umair, Ghulam Ali Bajwa “Techno-mechanical properties of cocoon filament of mulberry silkworm (*Bombyx mori* L.) strains” International Conference on Technical Textiles (ICTT), Venue: NTU, Faisalabad, (2017).
12. Abdul Qayyum, Aamir Saeed Malik, Aliyu Nuhu Shuaibu, Nadeem Nasir “Estimation of Non-contact Smartphone Video-based Vital Sign Monitoring using Filtering and Standard Color Conversion Techniques” IEEE Life Science Conference on Personalized healthcare and wearable’s 13-15 December .Sydney Australia (2017).

4 Training & Developments

Following faculty members and staff have trainings.

Sr.#	Date	Name	Training	Country
1	29-05-2017	Dr. Zahid Rizwan	National Conference on HEC vision 2025	Pakistan
2	07-03-2017	Dr. Nadeem Nasir	Wet Fiber Spinning System	Malaysia
3	19-06-2017	Dr. Nadeem Nasir	Network Analyzer	Malaysia
4	06-06-2017	Dr. Nadeem Nasir	Particle Size Analyzer (PSA)	Malaysia
5	20-06-2017	Dr. Nadeem Nasir	Health and Safety (HSE)	Malaysia
6	22-06-2017	Dr. Nadeem Nasir	Material studio for nanomaterial Simulation	Malaysia

5 Important Events and activities

1st Cycle of Self-Assessment Process of MS Mathematics

Quality Enhancement Cell (QEC) of National Textile University has completed the 1st Cycle of Self-Assessment Process for MS Mathematics on April 18, 2017. The Assessment Team visited Applied Sciences Department of the university for the Assessment of MS Mathematics Program.



Departmental Board of Studies Meeting

Departmental has successfully conducted its 5th Meeting of Departmental Board of Studies on 4th May 2017. Following Members of the Board attended the Meeting:

Dr. Zulfiqar Ali Raza, Asso. Prof NTU, Prof. Dr.. M. Tahir Hussain, NTU, Dr. Zahid Rizwan, Asso. Prof, NTU, Dr. Yasir Jamil, Asso. Prof. UAF, Dr. Masood Ahmad, Asso. Prof. UOS, Dr. Sohail Chand, Asst. Prof, PU Dr. Muhammad Arshad, Asst. Pro. NTU, Dr. Muhammad Imran Yousaf, Lect, NTU and Dr. Umber Sheikh, Asst Prof, NTU.



Faculty of Applied Sciences Department Participation in Leadership Program 2017

Participation of Prof. Dr. M. Tahir Hussain (Professor Applied Sciences Department) in Leadership Training Program of HEC. Higher Education Commission (HEC) in collaboration with British Council of Pakistan organized a leadership training program at London, UK to equip the Senior Management of Pakistani Universities with latest governance tools and foster excellence in academic and research performance of the universities. A group of Deans and Senior Management of different higher education institutions of Pakistan were selected to participate in the said program which was held at London from 19th to 26th July 2017.



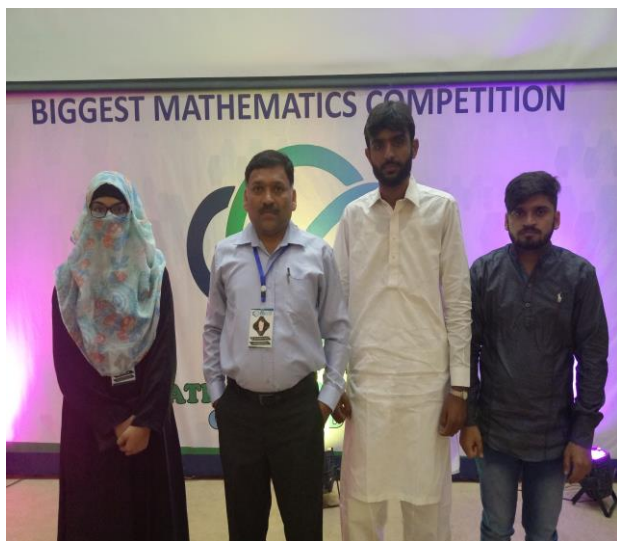
With Ambassador of Pakistan His Excellency Syed Ihtesam Abbas, at Pakistan Embassy, London

Participation of Dr. Nadeem Nasir (Assistant Professor Applied Science Department) in Leadership Training Program at University Technology PETRONAS Malaysia on 15-18 July 2017. Ministry of higher education Malaysia (MOHE) is focusing to sustain the higher education ecosystem in order to develop and enhance individual potential and fulfil the nation's aspiration. The aim of this training to generate first-rate thinkers, scholars, masters, skilled and semi-skilled manpower in accordance with their respective roles.



Pakistan National Mathematics Olympiad 2017

A Team of three students of N.T.U had participated in the Pakistan National Mathematics Olympiad 2017 held on 12-13 November 2017 at IBA Sukkur. The focal person of the team was Dr. Muhammad Arshad (Assistant Professor Department of Applied Sciences). This team secured the 6th Position among the eighteen Universities.



Visit of Faculty University Sargodha to N.T.U

Following Faculty members from University of Sargodha visiting Department of Applied Sciences, NTU on 10th August 2017. Purpose of the Visit is Research Collaboration. The faculty member Dr. Mazhar Ali Kalyar and Dr. Anwar Ul Haq from University of Sargodha visited N.T.U.



Mirri Trip oil and gas field Progress presentations

MIRI, declared as Malaysia's newest city today, occupies a very special place in the history of Malaysia's oil industry, it was here that oil was first struck in 1910. Possibly the earliest record of the existence of oil seepages in Sarawak's Baram-Miri District was mentioned in the diary of the Baram district officer in 1882 when he wrote of what he called "the celebrated earth oil". The purpose of this visit to simulate the oil and gas field environment and the progress was presented by Dr. Nadeem Nasir.



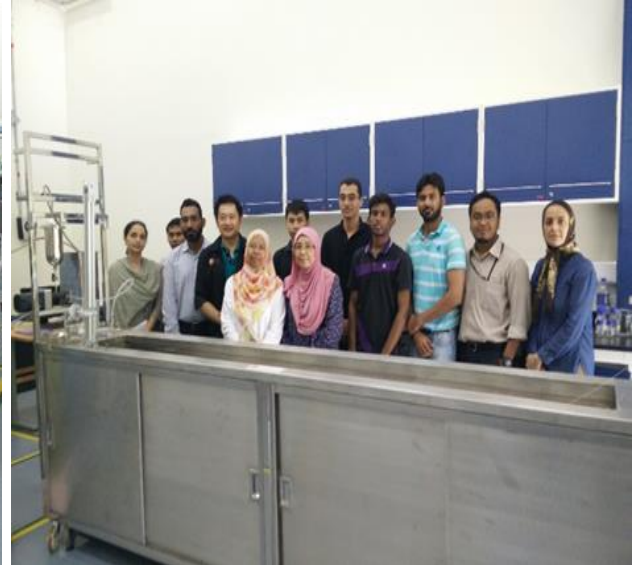
Visit to Halliburton and Baker Hughes Malaysia

Halliburton (Malaysia) Sdn Bhd manufactures oil and gas equipment. It also offers oil and gas drilling and evaluation services. The company is headquartered in Kuala Lumpur, Malaysia. Halliburton (Malaysia) Sdn Bhd operates as a subsidiary of Halliburton Company. The aim of this visit to know the injection well and production Well bore size and the technology for the enhanced oil recovery.



Fiber spinning system

Wet spinning is required for polymers that require dissolving in a solvent to be spun. It is named wet spinning because the fibres are extruded directly into a liquid bath. Being extruded into a liquid provides a greater drag force on the filament than those extruded directly into air, therefore the speeds at which this occurs is reduced from that of melt and dry spinning. Once evaporated these fibres then have to be drawn or stretched in order to orient the polymers to give the fibre its strength. The fibers using wet spinning fiber system was developed by Dr. Nadeem Nasir for sensing applications.



Department Visit of Textile Engineering Departments

Department of Applied Sciences arranged a visit of MS Mathematics Students to different Departments of Textile Engineering and NTRC, NTU on 21st and 22nd June 2017.



Farewell Lunch to Mr. Muhammad Yousaf

Mr. Muhammad Yousaf, Sr. Lab Assistant, Electro Technical Lab, Department of Applied Sciences retired on 20th August 2017. Department of Applied Sciences arranged a Farewell Lunch on 16th August 2017. Department recognizes his 18 years of Services and Wishing him the best in this next phase in his life.



Professor Dr. Tahir Hussain Participation of 14th Asian Textile Conference

The 14th Asian Textile Conference (ATC-14) was held in Hong Kong from June 27-30, 2017 hosted by The Hong Kong Polytechnic University's Institute of Textiles and Clothing (ITC) on behalf of the Federation of Asian Professional Textile Associations. In this conference, Prof. Dr. Muhammad Tahir Hussain, Dean Academics, presented the research paper entitled "Dyeing of silk fabric with natural dye from camphor (*Cinnamomum Camphora*) plant leaf extract". Travel grant for presentation of the research in this conference was awarded by Higher Education Commission (HEC), Pakistan.



6 MS Mathematics Theses Supervision

1. Ms. Shahina Riaz Chemical modification of polyhydroxybutyrate for the synthesis of nanocomposites. MS Chemistry, Department of Chemistry, University of Agriculture, Faisalabad-Pakistan. Supervised by Dr. Z.A Raza (2017).
2. Ms. Umaira Bilal Clean fabrication and impregnation of silver nanoparticles on viscose fabric for antibacterial performance. Department of Home Economics, Government College University, Faisalabad-Pakistan. Supervised by Dr. Z.A Raza (2017).
3. Ms. Haleema Encapsulation of antibiotic drug into polyhydroxybutyrate nanospheres and their application on textile fabrics. MS Textile Engineering, Faculty of Engineering and Technology, National Textile University, Faisalabad-Pakistan. Supervised by Dr. Z.A Raza (2017).
4. Mr. Muhammad Ramzan “Applications of Grobner Bases” MS Mathematics, Applied Sciences Department, National Textile University, Faisalabad-Pakistan. Supervised by Dr. Muhammad Arshad and Dr. Shahid Hussain Arshad (2017).
5. Mr. Waseem Ashraf “Grobner Bases and Colourability of Graphs” MS Mathematics, Applied Sciences Department, National Textile University, Faisalabad-Pakistan. Supervised by Dr. Shahid Hussain Arshad and Dr. Muhammad Arshad (2017).
6. Ms. Shumaila Sabar “Application of Decomposition Method to Solve some Fractional Order Equations” MS Mathematics, Applied Sciences Department, National Textile University, Faisalabad-Pakistan. Supervised by Dr. Muhammad Arshad and Dr. Umber (2017).

7 Awards / Research Grants

Sr. #	Title of Project	Initiation date	Completion date	Amount(s) awarded	Funding source(s)
1	Development of nanofibers based bioresorbable scaffolds for drug delivery applications: Dr. Z.A Raza as Co-PI	31-05-2017	On going	Rs.3,243,780	NRPU-HEC
2	Synthesis and characterization of rGO-CuO nanocomposites for photo-degradation of multi-drug resistant bacteria: Dr. Tariq Jan P.I and Dr. Z.A Raza as Co-PI	17-10-2017	On going	Rs.436,000	SRG-HEC
3	Investigation and improvement in mechanical properties of Pakistan silk. P.I Dr. Zahid Rizwan	Submitted	Under Review	Rs.1,48,70000	NRPU-HEC