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OBJECTIVE

To continue academic activities in a university having congenial environment for learning and research where I can practically apply and improve upon the skills acquired from my previous education.

EDUCATION

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|---------------------|--|
| Aug 2015 - Dec 2019 | PhD
School of Mechanical Engineering, Kyungpook National University (KNU), Daegu, South Korea |
| Sep 2008 – Jun 2010 | M.S. in Mechanical Engineering
G.I.K. Institute of Engineering Sciences & Technology, Topi, Pakistan |
| Aug 2000 – May 2004 | B.S. in Mechanical Engineering
G.I.K. Institute of Engineering Sciences & Technology, Topi, Pakistan |
| Sep 1997 - Nov 1999 | A-Levels
Sadiq Public School, Bahawalpur, Pakistan |
| Sep 1995 - Jun 1997 | O-Levels
Sadiq Public School, Bahawalpur, Pakistan |

WORK EXPERIENCE

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| Jan 2013 - | Assistant Professor, Department of Mechanical Engineering, FET International Islamic University (IIU), Islamabad, Pakistan <ul style="list-style-type: none">Taught Thermo-Fluids and Heat Transfer coursesSupervised three final year projects for undergraduate students |
| Oct 2011 – Dec 2012 | Lecturer at COMSATS Institute of Information Technology, Sahiwal, Pakistan <ul style="list-style-type: none">Taught Thermodynamics-I courseEstablished Mechanical Engineering Labs. at the department |
| Aug 2010 - Sep 2011 | Lecturer at HITEC University, Taxila <ul style="list-style-type: none">Taught Fluid Mechanics-II and Thermodynamics-I coursesSupervised the two final year projects for undergraduate students |
| Aug 2008 - Jun 2010 | Graduate Assistant at GIK Institute, Topi
Worked on a Pak-US project titled "Computational Mechanics" |
| Jan 2008 - Aug 2008 | Assistant Manager in Air Weapons Complex (AWC)
Worked on projects related to Cryogenics and Vacuum Systems Design in IISS Department |
| Oct 2004 - Jan 2008 | Lab Engineer/Teaching Assistant at GIK Institute
Extended the work on final year project and remained instructor in labs |

INTERESTS

Thermo-Fluid Sciences and Transient Heat Transfer

SKILLS

Microsoft Office, Matlab, Pro-Engineer, ANSYS CFX, CNC Coding

UNDERGRADUATE LEVEL COURSE PROJECTS

- **IC Engines** Analyzing the ignition, lubrication and starting system of the engine
- **Heat Transfer** Design and fabrication of solar water heater
- **Manufacturing Technology** Analysis of biocompatible heart valves
- **Theory of Machines** Design and fabrication of Geneva indexing mechanism
- **CFD and FEM** Flow and structural analysis of solid and fluid flow and heat transfer problems

FINAL YEAR PROJECT

Design, Fabrication and Installation of Micro Hydel Power Plant

Project is in operation at the site near Mardan city. It has been installed on a small size canal, as Pakistan has many of them, with small head and large flow rate. It is generating around 50 KW of power.

GRADUATE LEVEL COURSE PROJECTS

Leak Rate Measurement and Analysis through different profiles

The uniform cross-section channels are analyzed for different shapes i.e. square, rectangular, triangular, circular and elliptic for two different fluid flows i.e. air and water

Heat Conduction analysis in a Composite Cylinder

The numerical results of the conduction heat transfer problem are analyzed in a composite cylinder using finite difference and finite element methods

MASTERS THESIS PROJECT

Study of the effect of sediment flows in Tarbela Dam Tunnels

Tarbela dam is one of the largest earth filled dam in the world and it is the backbone for water storage and electric power generation in Pakistan. The sediments inflows in the Tarbela reservoir has resulted in reduction in water storage capacity and are damaging the tunnels carrying water to the power generating units and is a severe threat to the plant equipment. Results obtained highlighted the critical areas for damage and ultimately the life prediction of the tunnels. The high head period i.e; July, August and September is found to be most critical for damage. Damage to the tunnels due to erosion is investigated and results are compared with the experimental erosion results carried out for such geometries and are observed in good agreement.

PhD DISSERTATION

Erosion wear predictions for turbomachinery in process industry and power plants

The present work shows erosion loss identification and prediction in both of these problems with the help of site studies and CFD techniques. The governing equations of fluid flow are solved numerically on an unstructured grid using FVM based software named, ANSYS CFX. The tongue and belly regions of the volute casing are found to be the most affected locations for erosion damage for the Centrifugal pump. Erosion rate increases with impact velocity, impact angle, particle size and concentration in a distinct manner, which leads to the head and efficiency losses. Effect of cavitation erosion is observed near the impeller eye and it increases with increase in suction pressure and flow velocity. The sediment particles cause damage to the plant equipment, mainly to the Francis turbine components; stay and guide vanes, runner blades and draft tube. Moreover, gradual removal of the base material has changed the profiles of various components of the turbine and weakens its structure. As a result, these components are disassembled and refurbished almost every year. One of the major concerns of these effects is the continuous loss of turbine hydraulic efficiency. Cavitation erosion is found at the trailing edges of the runner blades and it is a function of suction head, vapor pressure head and surface roughness.

JOURNAL PUBLICATIONS

- **Adnan Aslam Noon**, Muhammad Abdul Qyyum, Feng Wei, Moonyong Lee, Vortex tube shape optimization for hot control valves through computational fluid dynamics, International Journal of Refrigeration 102 (2019) 151–158.
- Muhammad Abdul Qyyum, Feng Wei, Arif Hussain, **Adnan Aslam Noon**, Moonyong Lee, An innovative vortex-tube turbo-expander refrigeration cycle for performance enhancement of nitrogen-based natural-gas liquefaction process, Applied Thermal Engineering 144 (2018) 117–125.
- **Adnan Aslam Noon**, Man-Hoe Kim, Erosion wear on Francis turbine components due to sediment flow, Wear 378-379 (2017) 126–135.
- **Adnan Aslam Noon**, Man-Hoe Kim, Erosion wear on centrifugal pump casing due to slurry flow, Wear 364-365 (2016) 103–111.

- Muhammad Abid, **Adnan Aslam Noon**, Hafiz Abdul Wajid (2014), "Erosion study of Tunnel 1 of Tarbela Dam", Iranian Journal of Science & Technology, Transactions of Mechanical Engineering (IJSTM).
- Muhammad Abid, **Adnan Aslam Noon** (2010), "Turbulent flow simulations through Tarbela Dam Tunnel 2", Journal of Water Resource and Protection (JWARP) by Scirp. Vol. 2, pp 507-515.
- Muhammad Abid, **Adnan Aslam Noon** (2010), "Simulation of Turbulent flow through Tarbela Dam Tunnel 3", IIUM Engineering Journal, Vol. 11, No. 2, pp- 201-224.

SUBMITTED JOURNAL PUBLICATIONS

- **Adnan Aslam Noon**, Man-Hoe Kim, Cavitation wear of Centrifugal lime slurry pump impeller blades and design optimization for reduction in power requirement, Journal of Mechanical Science and Technology (JMST).
- **Adnan Aslam Noon**, Man-Hoe Kim, Experimental work and numerical analysis performed for erosion reduction in hydel turbines, A Review, Journal of Renewable and Sustainable Energy Reviews.
- **Adnan Aslam Noon**, Man-Hoe Kim, Effect of cavitation erosion on runner blades and draft tube in a Francis Turbine, Journal of Energy Resources Technology (JERT).
- Ahmad Adnan Shaukat, **Adnan Aslam Noon**, Man-Hoe Kim, Numerical and experimental investigations for design optimization of Darrieus-type vertical axis wind turbine, Journal of Energy Resources Technology (JERT).

CONFERENCE PUBLICATIONS

- **Adnan Aslam Noon**, Man Hoe Kim, Cavitation erosion at runner blades in a Francis turbine at the Tarbela Dam Hydro Project, Proceedings of Annual SAREK, April, 2017.
- **Adnan Aslam Noon**, Man Hoe Kim, Sediment erosion predictions on Francis Turbine components, 9th National Congress on Fluids Engineering (NCFE), August, 2016.
- **Adnan Aslam Noon**, Man Hoe Kim, Erosion predictions for Centrifugal Pump casing, Proceedings of Annual SAREK, April, 2016.
- **Adnan Aslam Noon**, Faheem Qaiser, Hamza Abdullah Khan, Babar Ishfaq, Qasim Javed, "Reduction of Erosion in Centrifugal Pump casing" 12th International Bhurban Conference on Applied Sciences and Technology (2015).
- **Adnan Aslam Noon**, Imtiaz Ali, Ahmad Adnan Shoukat, Mushtaq Ahmed, Salman Fazal, "CFD analysis of the Aerodynamics Involved in Vertical Axis Wind Turbine (VAWT)", in 12th International Bhurban Conference on Applied Sciences and Technology (2015).
- **Adnan Aslam Noon**, Dr. Afzaal Malik, Abbas Raza, Faheem Qaiser "Design and Analysis of Transient response of centrifugal pump in High Viscous Environment with Bond Graph" in First International Conference on Structural Dynamics and Vibrations (2014).
- **Adnan Aslam Noon**, Shoaib Rasheed, "Sediment erosion in Francis Turbine at Tarbela dam hydel project" in ASTech (2012) COMSATS-Vehari, Pakistan.
- Muhammad Abid, **Adnan Aslam Noon**, "Study of the effect of Sediment flows through Tarbela Dam Tunnels", Proceedings of the 1st Annual International Symposium on Frontiers of Computational Sciences (ISFCS), (2010), Islamabad.
- Muhammad Abid, **Adnan Aslam Noon**, "Turbulent flow simulations through Tarbela Dam Tunnels considering the effect of sediment particles", Proceedings of the 10th Biennial ASME Conference on Engineering Systems Design and Analysis ESDA, (2010), Yeditepe University, Istanbul.

BOOKS

Muhammad Abid, **Adnan Aslam Noon**, Maftooh u Rehman Siddique, "Water and Sediment Flow Simulations for Tarbela Reservoir and Tunnels (A preliminary study).", published by Verlag Dr. Muller (VDM), 2010. ISBN # 978-3-639-34183-6

SHORT COURSES

Attended and completed the advanced short courses titled:

Advanced Heat Transfer and Computational Fluid Dynamics

Analytical and Numerical methods for Conduction and Convection problems

Design Optimization and Analysis Techniques

Complete process optimization by using the computational tools

Under the Asia-Link FASTAHEAD Project held in GIKI in November, 2008

EXTRA CURRICULAR ACTIVITIES

- Member Pakistan Engineering Council (**PEC**)
- Member of American Society for Mechanical Engineering (**ASME**)
- Remained cricket captain at town level team

- Member of welfare committee at subsector level

AWARDS AND ACHIEVEMENTS

- Attained "Researcher Award" for Year 2017 at School of Mechanical Engineering, Kyungpook National University, Daegu, South Korea.
- Remained incharge of the media and publicity committee for the 2nd PGSRET to be held at Department of Mechanical engineering, IIU Islamabad on 10-11 June, 2015.
- Revised the BS Mechanical Engineering Curriculum at Department of Mechanical Engineering, IIUI.
- Awarded session best paper in Engineering System Design and Analysis (ESDA) conference organized by ASME in Istanbul, Turkey held on 12-14 July, 2010
- Presented as a guest speaker titled "Study of the effect of sediment flows through Tarbela Dam Tunnels" in first International Symposium on Frontiers of Computational Sciences (ISFCS) 2010 held at Islamabad
- Awarded participation certificate in all Pakistan Digital Innovation Competition and Exhibition (DICE) held at CIIT Lahore in December, 2009.
- Awarded certificate in the workshop on MATLAB and Simulink (A tool for engineering applications) held in GIKI in October, 2008
- Awarded certificate of participation in the 5 days Vacuum Technology workshop organized by Pakistan Vacuum society (PVS) in April, 2008
- Awarded appreciation certificate in all Pakistan technical papers presentation by IEE.
- Winner of the PTC (Pakistan Tobacco Company) final year project competition 2004.
- Launched the flood light cricket tournament first time in the home town

REFERENCES

- **Prof. Dr. Javed Ahmad Chattha** Professor, Faculty of Mechanical Engineering, GIK Institute. Topi. E-mail: chattha@giki.edu.pk
- **Prof. Dr. Muhammad Pervaiz Mughal** Professor Department of Mechatronics Engineering, University of Engineering and Technology (UET), Lahore. E-mail: mp_mughal@hotmail.com
- **Prof. Dr. Muhammad Abid** Professor and Director Interdisciplinary Research, COMSATS Institute of Information Technology. Islamabad. E-mail: mabid692000@yahoo.com
- **Prof. Dr. Man-Hoe Kim** Professor, School of Mechanical Engineering, Kyungpook National University (KNU), Daegu, South Korea. E-mail: manhoe.kim@knu.ac.kr