

CURRICULUM VITAE

NAME: Muhammad Shakaib

PRESENT TITLE: Associate Professor, NED University of Engineering and Technology. Karachi

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EDUCATION

1990-1992 Higher School Certificate, Pre-Engineering, Gulshan-e-Iqbal College, Karachi, Pakistan

1992-1997 B.E. in Mechanical, NED University of Engineering and Technology, Karachi, Pakistan

1998-2001 M.Sc., NED University of Engineering and Technology, Karachi, Pakistan

2005-2008 Ph.D., NED University of Engineering and Technology, Karachi, Pakistan

RESEARCH INTEREST

Water Desalination, Computational Fluid Dynamics (CFD) Modeling, Membrane Processes, Dialysis

TEACHING INTEREST

Fluid Mechanics, Thermodynamics, Transport Phenomena and Engineering Graphics

RESEARCH AND TEACHING EXPERIENCE

<u>Year</u>	<u>Description</u>
1998-2003	<p>Laboratory Engineer / Research Assistant in Mechanical Engineering Department in NED University of Engineering and Technology, Karachi.</p> <p>Designed, operated and maintained Reverse Osmosis (RO) Plant. Also tested the effect of ultrasonic vibrations on membrane fouling. The water quality parameters were measured during the RO process. Conducted laboratory classes of undergraduate students.</p>
2004-2012	<p>Working as Assistant Professor / Associate Professor in NED University.</p> <p>Taught undergraduate theory courses of Fluid Mechanics, Thermodynamics, Engineering Drawing and Transport Phenomena. Used computational fluid dynamics (CFD) software FLUENT and Gambit to simulate flows in membranes during PhD work.</p>
2010-2011	<p>Post-doctoral fellow in University Malaysia Pahang.</p> <p>The research is in the area of membrane synthesis. The effect of modified polyamide membrane material is investigated on dialysis process.</p>

Journal

1. M. Shakaib, I. Ahmed, R.M. Yunus, A. Idris, Effect of added monosodium glutamate additive on characteristics of polyamide dope solutions (accepted, Journal of Macromolecular Science-Physics).
2. M. Shakaib, I. Ahmed, R.M. Yunus, A. Idris, Morphology and thermal characteristics of polyamide / monosodium glutamate membranes, (accepted, International Journal of Polymeric Materials).
3. I. Ahmed, A. Hussain, S.M.F. Hasani, M. Shakaib, R.M. Yunus, Computational modeling for visualization of flow patterns in a membrane testing device, Separation and Purification Technology, 90(2012)1-9.

4. M. Shakaib, S.M.F. Hasani, I. Ahmed, R.M. Yunus, A CFD study on the effect of spacer orientation on temperature polarization in membrane distillation modules, *Desalination* 284(2012) 332-340.
5. M. Shakaib, S.M.F. Hasani, M. Mahmood, Numerical simulations for transient flows in obstructed journal channels of membrane modules, *NED Journal of Research*, Vol. VII, 2010.
6. S.M.F. Hasani, M. Shakaib, M. Mahmood, CFD modeling of unsteady fluid flow and mass transfer in spacer-filled membrane modules, *Desalination and Water Treatment* 9 (2009) 211-220.
7. M. Shakaib, S.M.F. Hasani, M. Mahmood, CFD modeling for flow and mass transfer in spacer-obstructed membrane feed channels, *Journal of Membrane Science*, 326 (2009) 270-284.
8. M. Shakaib, S.M.F. Hasani, M. Mahmood, Study on the effects of spacer geometry in membrane feed channels using three-dimensional computational flow modeling, *Journal of Membrane Science*, 297 (2007) 74-89.

Conference

1. M. Shakaib, I. Ahmed, R.M. Yunus, Effect of permeation velocity on flow behavior and pressure drop in feed channels of membranes, *Proceedings of ACSSSR Conference on Scientific and Social Science Research*, Penang, June, 2011.
2. M. Shakaib, M.E. Haque, I. Ahmed, R.M. Yunus, Modeling the effect of spacer orientation on heat transfer in membrane distillation, *International Conference on Chemical and Environmental Engineering*, Singapore, Dec 2010.
3. M. Shakaib, I. Ahmed, R.M. Yunus, Influence of additive concentration in polymer solution on dope characteristics and membrane tensile strengths, *Proceedings of National Conference in Mechanical Engineering*, Pekan, Malaysia, Dec 2010.
4. I. Ahmed, A. Idris, M. Shakaib, R. Rajput, D.M.R. Prasad, Influence of microwave synthesis dissolution technique on the kinetics properties of polymer dope solution, *Proceedings of Virtual Conference on Chemical Engineering and Advanced Materials*, Nov 2010.

5. S.M.F. Hasani, M. Shakaib, Computational fluid dynamics (CFD) study of temperature polarization in membrane distillation modules, ARWADEX conference, Water Desalination Conference in the Arab Countries, Riyadh, Saudi Arabia, April 2010.
6. M. Shakaib, S.M.F. Hasani, M. Mahmood, Effect of spacer geometry on concentration polarization and membrane fouling: experimental study, Proceedings of IDA World Congress on Desalination and Water Reuse, Dubai UAE, Nov 2009.
7. M. Shakaib, S.M.F. Hasani, M. Sohail, Parallel processing efficiency of computational fluid dynamics (CFD) simulations, Proceedings of NAFEMS World Congress, Crete, Greece, June 2009.
8. M. Shakaib, S.M.F. Hasani, M. Mahmood, Computational fluid dynamics (CFD) modeling in narrow obstructed-channels of membrane modules: A review, Proceedings of 4th Mechanical Engineering Congress, Karachi, Jan 2009.
9. S.M.F. Hasani, M. Shakaib, M. Mahmood, CFD modeling of unsteady fluid flow and mass transfer in spacer-filled membrane modules, Proceedings of Conference on Membranes in drinking water production, Toulouse, France, Oct 2008.
10. M. Shakaib, S.M.F. Hasani, M. Mahmood, CFD studies for flow and concentration profiles in feed channels of spiral-wound membrane modules, Proceedings of 10th World Filtration Congress, Leipzig, Germany, April 2008.
11. M. Shakaib, S.M.F. Hasani, M. Mahmood, Effect of spacer geometry on mass transfer in membrane modules – computer simulations, Proceedings of IDA World Congress on Desalination and Water Reuse, Gran Canaria, Spain, Oct 2007.
12. M. Shakaib, S.M.F. Hasani, M. Mahmood, Flow instabilities in feed channels of spiral wound membrane modules, Proceedings of NAFEMS World Congress, Vancouver, Canada, May 2007.
13. S.M.F. Hasani, M. Shakaib, M. Mahmood, Fluid flow and mass transfer in membrane feed channels, Proceedings of 5th IBCAST Conference, Islamabad Pakistan, Jan 2007.

14. M. Shakaib, S.M.F. Hasani, M. Mahmood, Three-dimensional numerical modeling of flows in narrow obstructed channels, Proceedings of 3rd BSME ASME Conference on Thermal Engineering, Bangladesh, Dec 2006.
15. M. Shakaib, J.A. Khan, Effect of ultrasonic vibrations on fouling of reverse osmosis membranes, Proceedings on 9th Asian Congress on Fluid Mechanics Isfahan, Iran, May 2002.
16. M. Shakaib, Desalination: A solution to water shortage, Proceedings of Seminar on Water Quality Issues, Islamabad, Pakistan, March 2002.

Patent

1. I. Ahmed, M. Shakaib, An economical and reliable membrane testing cell (Malaysian Patent-accepted).