

**Dr. Muhammad Abid**  
DIRECTOR, INTERDISCIPLINARY RESEARCH CENTER  
CHAIRMAN & PROFESSOR, MECHANICAL ENGINEERING PROGRAM  
COMSATS INSTITUTE OF INFORMATION TECHNOLOGY, WAH CAMPUS, PAKISTAN  
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## RESEARCH INTERESTS AND EXPERTISE

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- Bio inspired Sensing and Bio inspired Actuation
- Alternate energy technologies including power production using photovoltaic systems, Biogas, Micro hydro Power Plants etc.
- Design and Analysis of Gasketed and Non-Gasketed Bolted Pipe Joints under combined loading applications such as axial, bending and internal pressure loadings to determine actual joint load capacity using experimental, analytical and Numerical techniques.
- Performance evaluation of bolted flanged pipe joints under combined internal pressure and thermal loading using experimental, analytical and Numerical techniques.
- Study of gasketed bolted flanged joint relaxation behavior and optimization to for better joint performance using experimental, analytical and Numerical techniques.
- Welding Deformation and residual stress measurement studies using experimental, analytical and Numerical techniques.
- Water and sediment flow simulations through Tarbela dam reservoir and tunnels.
- Cavitation and erosion analysis of Francis Turbine blades, casing and air relief valves.
- Erosion rate measurements using different sizes, shapes and quantity of particles.
- Surface sensitivity and reliability analysis studies of non-gasketed joints using experimental techniques.
- Design, Analysis and Testing of Push Pipe Joints using experimental, analytical and Numerical techniques.
- Design optimization of Overhead Crane Girders using analytical and Numerical techniques.
- Application of Modular Design approaches and Enterprise Engineering
- Simulation and modeling of high speed machining and cutting using numerical techniques.
- Leak detection systems study and implementation
- Leak rate measurement using experimental, analytical and numerical techniques.
- Development of adaptive mesh generation algorithms and code parallelization for high performance computing.
- Development of moving mesh techniques.

## EDUCATION

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**October 1997 – December 2000**

**PhD** in Mechanical Engineering

University of Strathclyde, Glasgow, Scotland, UK.

**Research project:** Experimental and analytical studies of conventional (gasketed) and unconventional (non gasketed) flanged pipe joints (With special emphasis on the engineering of 'Joint Strength' and 'Sealing').

**Objectives of the project included:**

- Study of different approaches adopted for the design and analysis.
- Finite element analysis using 2-D and 3-D linear and non-linear techniques.
- Analytical and parametric studies comparing different codes and standards.
- Experimental and analytical studies;
  - To compare the two main joint characteristics i.e. '*joint strength*' and '*sealing capability*' under the application of internal pressure, axial and lateral bending moments applied singly and in combination.
  - To study bolt pre-loading, bolt bending, bolt and joint relaxation, effect of joint tightening sequence and joint tightening procedures.
  - To study the effect of different methods of handling, fabrication, assembly and tooling required to make a proper joint.
  - To highlight surface sensitivity of metal-to-metal flanges during manufacturing, fabrication and handling.
  - To study bolt behavior used in the joints.
- Industrial surveys to highlight the problems faced by the industrial sector using both the type of flange joints and their trend towards the implementation of non-gasketed flange joints.
- Risk assessment studies in the light of observations, surveys and experimental work.

**Oct. 1997 – Aug. 1998**

**MSc** in Mechanical Computer Aided Engineering

University of Strathclyde, Glasgow, Scotland, UK.

**Dissertation:** Experimental and analytical studies of conventional (gasketed) and unconventional (non gasketed) flanged pipe joints under combined loading.

**Result:** Course work was passed with distinction. MSc was converted to PhD as per offer of UoS and Shell Expro Ltd UK from back date as per honorary performance base.

**Course work:** FEM, Fracture Mechanics, Thin Walled Structures, Pressure Vessel Design, Five Group Projects on Mechanical Computer Aided Engineering Design.

**1987 - 1992**

**BSc** in Mechanical Engineering with Honors

University of Engineering and Technology, Lahore, Pakistan

**WORK EXPERIENCE**

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**a) TEACHING**

- **Director and Professor Interdisciplinary Research Center, COMSATS Institute of Information Technology, Wah Cantt, Pakistan**
  - **August 01, 2014 ~ Till To-date**
- **Chairman Mechanical Engineering, COMSATS Institute of Information Technology, Pakistan**
  - **December 01, 2014 ~ Till To-date**

- **Faculty of Mechanical Engineering, GIK Institute of Engineering Science & Technology, Pakistan**
  - **Professor (January 01, 2012 ~ 31 July, 2014)**
  - **Dean (August 2011 ~ Aug 2014)**
  - **Associate Professor (Jan 2006 ~ December 31<sup>st</sup>, 2011)**
  - **Assistant Professor (Feb 2001 ~ Dec 2005)**
  - Undergraduate courses taught: Mechanical Engineering Design – ME362, Stress Analysis – ME416), Dynamics – ME212, CAD/CAM and its Labs – ME418, Finite Element Methods – ME466.
  - Postgraduate courses taught: Advanced Stress Analysis – ME514, Applied Finite Element Analysis – ME516, Product Design-ME561, CAD/CAM, Pressurized Systems, Thin Walled Structures, Design Optimization and analysis Techniques, Design Management and Prediction, Modeling, Simulation and Visualization, Case Studies in Advanced Heat Transfer.
  - Total Lab supervisions: 05 Nos.

- **Department of Mechanical Engineering, University of Strathclyde Glasgow, UK**  
**Teaching Assistant (1998-2000)**  
Courses Taught: Pressure Vessel Design, Computer Aided Engineering Design, Structural Mechanics, Engineering Analysis, Working model demonstration lab, CAE Lab.

**b) RESEARCH FELLOWSHIPS**

- University of Strathclyde, Glasgow, UK (8 weeks in 2002)
- University of Illinois at Chicago and Urbana Champaign, USA (8 weeks in 2007)
- University of Illinois at Chicago and Urbana Champaign, USA (8 weeks in 2009). Presently visiting UIUC USA till 31<sup>st</sup> August 2009.
- National University of Taiwan, Taiwan (3 Weeks in 2011) under NSF USA - NSC Taiwan funded Program.
- Visit to Different Universities in UK under Exploratory and Knowledge Exchange Grant. Funded by British Council Pakistan (Dec 2012).
- LYAKHOV School on Computational Materials Science. Evolutionary Structure Prediction Using the USPEX Code. Jointly organized by Guilin University of Electronics Technology, China and Stony Brook University USA. (1Week in 2013)

**c) CONSULTANCY (1999-2000)**

Performed extensive Linear and Non-Linear Finite Element Analysis to Review and Update Bolt Tension Values for ANSI Flange joints to control leakage for Shell Expro Ltd. UK.

**d) INDUSTRIAL EXPERIENCE: (06 Years)**

- **Design and Development Engineer (1993-1997)**  
Heavy Mechanical Complex (Pvt.) Limited, Taxila, Pakistan.
- **Maintenance Engineer (1992)**  
Rupali Polyester Pvt. Ltd, Lahore, Pakistan.

e) **AWARDS AND ACHIEVEMENTS**

- Speaker on behalf of Asia as expert at the conference on Pressure Equipment Directive Requirements and ASME Code 14-15 November 2013 in Genova Italy
- Speaker in a special seminar organized by ASME Turkey Section as expert in the area of Bolted flanged pipe joints on 19<sup>th</sup> November 2013 in Istanbul Turkey
- Judged VIP Design Contest on Visually Impaired People in Asia Pacific Initiative (API) and participated as National delegate nominated by IMechE, 13-17 Sep 2013, Hong Kong
- HEC Best University Teacher Award 2011 from Pakistan
- HEC Outstanding Research Award 2005-06 in the category of Best Research Paper.
- MOSS Prize 2008 for Best Research in the area of Process Industry by IMechE UK.
- Pakistan Academy of Sciences Gold Medal Award 2006 in the field of Engineering and Technology in recognition of outstanding research work in the subject.
- Appreciation Letters from Rector and Dean-FME of GIK Institute, on behalf of getting research equipment donation from University of Strathclyde, Glasgow, UK
- Based on notable contribution in teaching, research and other activities an honorarium of Rs. 100,000 is awarded by GIKI.
- Annual performance reports are rated as 'EXCELLENT A' and 'DISTINGUISHED A+'
- Best Paper Award in Intl Conference on Failure of Materials and Structures (FEMS2007) Oct 22-23, 2007.
- National Delegate: Nominated by Pakistan in South Africa during IIW2006 congress.
- Coordinator: National Design, Build and Fly Contests under STEM Careers Project for 2006 to 2011.
- First Indigenous PhD student thesis supervised completed in 2005.
- ORS, merit scholarship & Honorary research award from UoS's Vice Principle during PhD
- Overseas Development Shared Scholarship (ODASSS) during MSc
- BSc. Mechanical Engineering Passed with Honors and won merit scholarship each year
- Hijri Award in Matric and Merit scholarships in Intermediate

f) **FUNDED PROJECTS**

Project Name	Role	Amount	Duration
<b>INTERNATIONAL</b>			
Asia Link CN/ASIA-LINK/024 (109093)	Project Manager	Euro 1019000	2006-2008
Pak US	Principal Investigator	US\$ 512000	2006-2008
IDB Technical Grant	Project Team Member	US\$ 146600	2007-2008
EPSRC fast Track Award	Project Team Member	GBP 57000	1998-2000
<b>NATIONAL</b>			
Pakistan Science Foundation PSF/R&D/F-GIK/Engg (76)	Principal Investigator	PKR 1.25 million	2004-2007
Pakistan Science Foundation PSF/R&D/F-GIK/Engg (102)	Principal Investigator	PKR 0.75 million	2007-2009
Pakistan Science Foundation PSF/R&D/F-GIK/Engg (107)	Principal Investigator	PKR 0.6 million	2009-2010

Industry	Principal Investigator	PKR 0.5 million	2011-2012
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- ***Curriculum Developed and Offered in GIKI***

- MS in Advanced Design and Manufacture (in Collaboration with EU and Asian Partners)
- MS in Computational Mechanics (in collaboration with US Partners)
- BS Industrial Engineering (Approved, will start in 2014)
- MS in Computational Engineering and Computational Sciences (In progress, will be offered in Fall 2015)

- ***Publications***

- Books 12
- Book Chapters 03
- International Journals 96
- International conferences 114
- Trade Journal 01
- Technical Reports 41

- ***Research Fellowships***

- 8 weeks in 2002 in University of Strathclyde, Glasgow, UK
- 8 weeks in 2007 in UIC Chicago and UIUC Urbana Champaign USA.
- 8 weeks in 2009 in UIC Chicago and UIUC Urbana Champaign USA.
- 3 weeks in 2011 in National University of Taiwan, Taiwan under NSF-NSC funded Program on Bio-Sensing and Bio-Actuation
- 4 weeks visit to Different Universities in UK under Exploratory and Knowledge Exchange Grant. Funded by British Council Pakistan (Dec 2012).
- Lyakhov School on Computational Materials Science. Evolutionary Structure Prediction Using the USPEX Code. Jointly organized by Guilin University of Electronics Technology, China and Stony Brook University USA. (1Week in 2013)

- ***Research Donations***

- Test Rig and Data Logger donations of worth more than £50K for GIKI from Univ. of Strathclyde.
- DelCAM software donation of worth US\$255K for GIKI from M/S DelCAM, UK and ANSYS software on special discount for GIKI for individual nodes and High Performance Computing.
- Research grant from Shell Expro Ltd. UK provided a fund of £25K to build a test rig for testing bolted flange joints subjected to combinations of loading during MSc studies.
- Donation of worth Rs. 300,000 from industry for GIKI Advanced Manufacturing Lab.
- ASTA Project Management Software as donation from ASTA International for FME of worth more than Rs. 3.5 million

## **PROFESSIONAL MEMBERSHIPS**

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- UK Chartered Engr. (CEng), Engineering Council UK since 2006.
- Fellow Institution of Mechanical Engineers (FIMechE) UK
- Executive Committee Member of IMechE Pakistan Chapter

- Member Pakistan Engineering Council (PEC) since 1992
- Member Scottish International Resource Program UK since 1997.
- Associate Vice President of Association of Pakistani Scientists and Engineers in North America (APSENA).

## RESEARCH ACTIVITIES

### • RESEARCH SUPERVISION

**PhD:** Completed = 05 Nos.                      Evaluated = 02 Nos.                      In progress = 0 Nos.

**MSc:** Completed = 36 Nos.                      Evaluated = 06 Nos.                      In progress = 02 Nos.

### • Details of PhD Students Supervised

Name	Title	Year	Funded By
Muhammad Siddique	Experimental and Finite Element Investigation of Residual Stresses and Distortions in Welded Pipe Flange Joints	2005	HEC
Iftikhar ul Islam	Fracture analysis of thick cylinders under high fatigue cycle loading	2007	NUST, KRL
Kamran Ahmed Khan	Strength and sealing performance of gasketed bolted flange joint under combined thermal and internal pressure loading	2010	HEC
Masroor Hussain	ALE Moving Mesh Generation and High Performance Implementation using Open MP and MPI Libraries for FSI and Darcy Flow problems	2011	HEC
Shahid Parvez	Three-dimensional numerical simulation of stationary Gas Tungsten Arc Welding (GTAW) process	2012	HEC

## OTHER ACTIVITIES

### 1. CONTINUING EDUCATION ACTIVITY

1998: 'Pressure Vessel Design - Concepts and Principles' by IMechE UK.

1998: 'Composite materials and GRP Saddle Supports and Vessels - Concepts and Principles' by IMechE UK.

1999: 'Introduction to Piping Design and Analysis' course organised by IMechE UK.

2000: 'Introduction to the Commercialization the Technology' by University of Strathclyde, Glasgow equivalent to 6 credit hrs.

2000: 'Project Management' by Scottish Higher Education Funding Council (SHEFC) Contract Research Initiative at University of Strathclyde for Enhancing and embedding the development of Contract Research Staff & Managers.

2006: Attended workshop on **High Performance Computing** in Collaboration with UIUC, USA.

2007: Attended course on **Advanced Non-Linear FEM** in collaboration with UIUC, USA.

2008: Attended course on **Advanced Non-Linear FEM** in collaboration with UIUC, USA.

2008: Attended course on **Design, Management and Prediction** under Asia Link Project in collaboration with University of Strathclyde, Glasgow, UK

2008: Attended course on **Modeling, Simulation and Visualization** under Asia Link Project in collaboration with University of Strathclyde, Glasgow, UK

2008: Attended course on **Materials Design and Materials Processing** under Asia Link Project in collaboration with Northwestern Polytechnical University, China.

2011: National University of Taiwan, Taiwan (3 Weeks in 2011) under NSF USA - NSC Taiwan funded Program.

2013: Evolutionary Structure Prediction Using the USPEX Code. Jointly organized by Guilin University of Electronics Technology, China and Stony Brook University USA.

## **2. LINKS WITH INTERNATIONAL RESEARCH GROUPS**

Since 1997, Continuous research links with;

- VERAX Ltd. Sweden
- UK Universities: Univ. of Strathclyde, Glasgow, Manchester Metropolitan University, Bournemouth University, Southampton University, Loughborough University and others
- Chinese Universities: North-western Polytechnical University, Huaz Hong University
- US Universities: Illinois Chicago and UIUC, WMU and FSU
- Islamic University of Technology Bangladesh
- University of Technology Troyes France
- University of Malta, Malta
- Turkish Universities: Istanbul Technical University, Turkey, Yeditepe University
- National level universities in Pakistan
- Research institutions and industry for joint projects

## **3. RESEARCH COLLABORATIVE VISITS**

- 1998: Amsterdam to attend the meeting for European Pressure Equipment Research Council (EPERC) regarding the metal-to-metal flange joints for Technical Task Force 4 (TTF4).
- 1999: VERAX Ltd. Sweden, as part of research and experimental programme on the topic of Non-gasketed Flange Joints.
- 1999: ABB Stahl. Sweden, as part of research and discussion for the use and application of flange joints.
- 2000: Pakistan and Saudi Arabia, for industrial surveys for the introduction and implementation of modern Non-gasketed flange joints to complete thesis work
- 2002: Visited Glasgow, UK as research fellow for 4 weeks for continued research and research collaborations
- 2007: Visited UIC Chicago and UIUC at Urbana Champaign, USA for eight weeks as Research Fellow.
- 2008: Visited SANYA, China for Asia Link project meeting, seminar and further collaborative research projects
- 2008: Visited Huaz Hong University of Science and Technology, Wuhan China to attend Asia Link project meeting and to deliver some course contents.
- 2009: Visited UIC Chicago and UIUC at Urbana Champaign, USA for eight weeks as Research Fellow.
- 2011: Visited National Taiwan University, Taiwan under Bio sensing and Bio actuation program funded by NSF of USA and NSC of Taiwan.
- 2012: Visit to Different Universities in UK under Exploratory and Knowledge Exchange Grant. Funded by British Council Pakistan (Dec 2012).
- 2012: Lyakhov School on Computational Materials Science. Evolutionary Structure Prediction Using the USPEX Code. Jointly organized by Guilin University of Electronics Technology, China and Stony Brook University USA. (1Week in 2013)
- 2013: Visited Northwestern Polytechnical University and Guilin University of Electronic Technology China for possible joint collaborations
- 2013: Visited Yeditepe and ITU Turkish Universities for joint research work and lectures.

#### **4. INTERNATIONAL CONFERENCES ORGANIZED**

**06 Nos**

- 2008: International conference on Advanced Design and Manufacture (ICADAM2008), Sanya China under Asia Link project jointly with six EU and Asian partners. January 14-16, 2008.
- 2009: 26<sup>th</sup> Annual conference on Water: Lifeline for Energy and Health, APSENA2009. October 17-18, 2009, University of Illinois, UIUC USA.
- 2010: International Symposium on Frontiers of Computational Sciences ISFCS2010. June 7-8, 2010. Islamabad, Pakistan.
- 2012: International Symposium on Frontiers of Computational Sciences ISFCS2010. June 28-29, 2012. Islamabad, Pakistan.
- 2012: ICPVT13 conference UK as International Advisory Committee member
- 2014: IEOM2014 in Indonesia as Organizing committee member, chair sessions and scientific committee member

#### **5. SEMINARS, WORKSHOPS AND EXHIBITIONS Exhibitions**

**01 Nos.**

- 1999: Organized a stall at International Engineering Fair for the **Introduction and Implementation of Emerging Novel Design of Non-gasketed Flange Joints** with VERAX Ltd. at Stockholm, Sweden in October 2000.

#### **Seminars**

**12 Nos.**

- 1999: Organized a seminar on **'Implementation of Non-gasketed Flange Joints'**, for the industrial sector in December 1999 at Lal-Pir Power Plant, Pakistan and in January 2000 at Pakistan Steel Ltd. Karachi, Pakistan.
- 2000: Presented research work and report regarding improved bolt up procedures and techniques in **'Piping Forum'** arranged by Shell Expro Ltd. UK, in Aberdeen.
- 2006: Coordinated Seminar on **Collaborative research with large system codes on the web** in collaboration with University of Illinois, USA
- 2006: Coordinated Seminar on **A New Class of Multiscale Finite Element Methods: Application to Fluid and Solid Mechanics** in collaboration with University of Illinois, at Urbana-Champaign USA.
- 2007: Coordinated seminar on **Nodal Methods for Fluid and Solid Mechanics** by Dr Rizwan ud Din from UIUC USA under Pak US project for different academic, research and industrial organizations.
- 2009: Coordinated seminar on **Variational Multiscale Stabilized Formulation for the incompressible Navier-Stokes Equations** by Prof Arif Masud University of Illinois, USA under Pak US project.
- 2009: Coordinated seminar on **Nanotechnology: The Bridge Builder- Research, Education, and Outreach** by Prof Irfan S. Ahmad, Associate Director of Center for Nanoscale Science and Technology, University of Illinois, USA.
- 2010: Coordinated seminar on **Dispersive and Dissipative properties of high order scheme for computational wave propagation** by Dr Hafiz Abdul Wajid, Assistant Professor, COMSATS Lahore, Pakistan.
- 2010: Coordinated seminar on **Continuing Education and Technology Incubation** by Dr M A Irfan, Professor UET Peshawar, Pakistan.
- 2010: Coordinated seminar on **Experimental and numerical analysis of conventional and ultrasonically assisted cutting of bone** by Dr Khurshid Alam, Assistant Professor, NUST Islamabad, Pakistan.
- 2010: Coordinated seminar on **Motor Imaginary in learning external dynamics** by Dr Nabeel Anwar, Assistant Professor, NUST Islamabad, Pakistan.



- 2010: Coordinated seminar on **CFD studies of a Vertical Axis Wind Turbines (VAWT) – An attractive choice for power generation for urban environments** by Dr Naveed Durrani, AWC, Islamabad, Pakistan.
- 2012: Delivered lectures in Bournemouth University UK under Knowledge Sharing and Exchange Program by British Council
- 2012: Delivered lectures in Southampton University UK under Knowledge Sharing and Exchange Program by British Council
- 2014: Invited lectures in CIIT Sahiwal, Attock, Lahore, Wah and Islamabad Campuses on the importance of Interdisciplinary Research
- 2014: Keynote lectures in 1<sup>st</sup> Intl Conf. on Structural Dynamics and Vibrations. IST Islamabad. Pakistan. 3-5<sup>th</sup> Oct 2014.
- 2015: Keynote lectures in 1<sup>st</sup> Intl Conf. on Advancements in Mathematics. CIIT Attock Campus. Pakistan. 11-13<sup>th</sup> February 2015.
- 2015: Keynote lecture in 6<sup>th</sup> Intl Conf. on Recent Developments in Fluid Mechanics in NUST Islamabad Pakistan. 17-19<sup>th</sup> March 2015.
- 2015: Keynote lecture in CASM conference on Qualitative and Quantitative Techniques for Differential Equations. 4-6<sup>th</sup> June 2015.

#### **Workshops and Short Courses**

**25 Nos.**

- 2002: Coordinated an International Workshop on **Computer-Integrated Product Design and Manufacturing** Sponsored by Islamic Development Bank, participants from 10 international countries participated.
- 2003: Coordinated and conducted Workshops on **Introduction to Finite Element Analysis using ANSYS** for Industrial and Academic personnel.
- 2004: Coordinated an Conducted International Workshop on **CAD/CAM for Mechanical Component Design and Manufacturing** Sponsored by Islamic Development Bank, participants from 12 international countries participated.
- 2005: Coordinated a Workshop on **Pro-Mechanica** in August 2005.
- 2005: Conducted a **Workshop on Heat Exchanger Installation, Operation and Maintenance** in December 2006.
- 2006: Coordinated workshop on **High Performance Computing** in Collaboration with Univ. of Illinois Chicago, USA
- 2007: Coordinated course on **Advanced Non Linear FEM** in collaboration with University of Illinois, at Urbana-Champaign USA.
- 2007: Coordinated course on **Advanced Non-Linear FEM** in collaboration with University of Illinois Chicago, USA.
- 2008: Coordinated and conducted course on **Advanced Non-Linear FEM** in collaboration with University of Illinois Chicago, USA.
- 2008: Coordinated and conducted course on **Design, Management and Prediction** under Asia Link Project in collaboration with University of Strathclyde, Glasgow, UK
- 2008: Coordinated and conducted course on **Modeling, Simulation and Visualization** under Asia Link Project in collaboration with University of Strathclyde, Glasgow, UK
- 2008: Coordinated and conducted course on **Materials Design and Materials Processing** under Asia Link Project in collaboration with Northwestern Polytechnical University, China.
- 2008: Coordinated and conducted course on **Advanced Stress Analysis** at GIKI Pakistan for the academia and industry, Pakistan.
- 2008: Delivered some contents of the on **Design Optimization and Analysis Techniques** at NPU, China along with EU partner under Asia Link Project.
- 2008: Coordinated and conducted course on **Advanced Heat Transfer and CFD** at GIKI Pakistan for the academia and industry, Pakistan, under Asia Link Project.

- 2008: Coordinated and conducted course on **Design Optimization and Analysis Techniques** at GIKI Pakistan for the academia and industry, Pakistan, under Asia Link Project.
- 2010: Coordinated and conducted course on **Introduction to CFD using ANSYS CFX** in collaboration with industry at GIKI Pakistan.
- 2010: Coordinated and conducted course on **Introduction to FEM using ANSYS – Basic** in collaboration at GIKI Pakistan.
- 2010: Coordinated and conducted course on **Introduction to FEM using ANSYS - Advanced** at GIKI Pakistan.
- 2010: Coordinated and conducted course on **Introduction to Turbo Machinery using ANSYS CFX** in collaboration with industry at GIKI Pakistan.
- 2010: Coordinated seminar on **Introduction to Dynamic Analysis using ANSYS LSDYNA and AutoDyne** in collaboration with industry at GIKI Pakistan.
- 2014: Organized course on Die and Mould Design in collaboration with Industry
- 2015: Organized and conducted 2-Days workshop on Coaching Dynamics

## **6. MISCELLENEOUS HONORS/ACTIVITIES**

1. Reviewer: Journal of Engineering Mechanics, ASCE USA, IPVP Elsevier, WSEAS Journal of Computational Mechanics, Intl Journals of Mechanics and Structures, Journal of Structural Engineering.
  2. Reviewer: Conferences: ASME PVP2006-2007, FEMS2007, ICADAM2008, WSEAS2006
  3. Organizer: Organized ICADAM2008, SANYA, China. FEMS2007 Taxila, Pakistan. 3rd BSME-ASME 2006 Dhaka, Bangladesh, WSEAS2006 Italy, IEOM2014, FEOFS2013, ISFCS2010 and 2012.
  4. Session Chair: For conferences ICADAM2008 China, FEMS2007 Pakistan and TICME2005 Iran.
  5. Key Note Speaker for FEMS2007, ICASE2013 Pakistan, FEOFS2103 Korea and others
  6. Invited Speaker: By Industry and academia for personnel training on different topics.
  7. Co-Supervisor: For graduate research projects of other engineering universities in Pakistan, China, Bangladesh, UK, France, Malta and USA.
  8. Faculty Advisor for Undergraduate and Graduate students at GIKI.
  9. Member: Computational Resource Management, Convocation, Admission, Examination and Curriculum Committee at GIKI.
  10. UET Peshawar: Examination and curriculum committee, Selection Board, Board of Studies
  11. Others: GIKI Colloquia, STEM Careers Projects, HEC, UET Jamshoro.
  12. Organizer Annual APSENA 2009 Conference and many others
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## **7. IT Skills**

- Finite Element Analysis software: ANSYS®; CosmosWorks, ProMechanica
  - CAD Packages: AutoCAD, SolidEdge; SolidWorks, Mechanical Desktop, Pro-Engineer DelCAM for Surface modelling and CNC manufacturing
  - General Office Packages: MS Word, MS Excel, Power Point,
  - Others: Project Manager, Working Model;
  - Languages: C++, AutoLisp
  - Software development for Overhead Travelling Cranes using AutoLISP programming.
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## List of Publications in Journals Having Impact Factor

### Prof. Dr Muhammad Abid

#### A. INTERNATIONAL JOURNAL PUBLICATIONS (PUBLISHED)

**>90 NOS.**

S.#	Name of Author(s)	Complete Name of Journal	ISSN	Title of the Publication	Vol/ Page #	Year	IF
1	D H Nash and <b>M Abid</b>	International Journal of Pressure Vessels and Piping	0308-0161	Combined external loads tests for standard and compact flanges	Vol. 77 No. 13, pp. 799-806	2000	1.293
2	D H Nash, J Spence, A S Tooth, <b>M Abid</b> and D J Power	International Journal of Pressure Vessels and Piping	0308-0161	A parametric study of metal-to-metal full face taper-hub flanges	Vol. 77 No. 13, pp. 791-798.	2000	1.293
3	<b>M. Abid</b> , D. H. Nash	International Journal of Pressure Vessels and Piping,	0308-0161	Comparative study of the behaviour of conventional gasketed and compact non-gasketed flanged pipe joints under bolt up and operating conditions'	Vol. 80, Issue 12, pp. 831-841.	2003	1.293
4	<b>M. Abid</b> , D. H. Nash	International Journal of Pressure Vessels and Piping	0308-0161	A parametric study of metal-to-metal contact flanges with optimized geometry for safe stress and no-leak conditions	Vol. 81, Issue 1, pp. 67-74.	2004	1.293
5	<b>M Abid</b> , D H Nash	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	Surface sensitivity study of non-gasketed flange joint	Vol. 218, pp. 205-212.	2004	0.520
6	<b>M Abid</b> , D H Nash	International Journal for Strain Measurement.	0039-2103	Leakage criteria through a non-gasketed pipe joint	Vol. 206, pp. 1-16.	2004	1.154
7	M. Siddique, <b>M. Abid</b> , H. F. Junejo, R. A. Mufti,	Journal of Material Science Forum	0255-5476	3D finite element simulation of welding residual stresses in pipe-flange joints: effect of welding parameters	Vol. 490-491, pp. 79-85.	2005	1.081
8	<b>M. Abid</b> , M. Siddique, R.A. Mufti	Journal of Modelling and Simulation in Materials Science and Engineering.	0965-0393	Prediction of welding distortions and residual stress in pipe-flange joint using finite element technique	Vol. 13, pp. 455-470.	2005	1.374
9	<b>M. Abid</b> , D. H. Nash	Journal of Engineering Integrity Society	1365-4101	FMEA of Gasketed and Non-gasketed bolted flanged pipe joints	Vol. 17, pp. 14-21.	2005	0.343
10	<b>M. Abid</b> , M. Siddique	Journal of Acta Mechanica.	0001-5970	Finite Element Simulation of Tack Welds in Girth Welding of Pipe-Flange Joint	Vol. 178, No.1-2, pp. 53-64.	2005	1.024
11	<b>M. Abid</b> , M. Siddique	International Journal of Pressure Vessels and Piping.	0308-0161	Numerical simulation to study the effect of tack welds and root gap on welding deformations and residual stresses of a pipe-flange joint	Vol. 82, pp. 860-871.	2005	1.513
12	<b>Muhammad Abid</b> , Muhammad Siddique	Journal of Modelling and Simulation in Materials Science and Engineering, Institute of Physics	0965-0393	Numerical Simulation of the effect of Constraints on Welding Deformations and Residual Stresses in a Pipe-Flange Joint	pp. 919-933	2005	1.374
13	M. Siddique, <b>M. Abid</b>	Journal of Modelling and Simulation in Materials Science and Engineering, Institute of Physics.	0965-0393	Numerical Simulation of mechanical stress relieving in a multi-pass GTA girth welded pipe-flange joint to reduce IGSCC	Vol. 13, pp. 1383-1402.	2005	1.374

14	<b>M. Abid</b>	International Journal of Mechanics and Materials in Design	1359-5997	Determination of gasketed and non-gasketed flanged pipe joint's capacity subjected to combined loading: An experimental approach	DOI: 10.1007/s10999-005-0519-6. Vol. 2, pp. 35-47.	2005	0.892
15	Muhammad Siddique, <b>Muhammad Abid</b>	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	FE Simulation of Mechanical Stress Relieving in Welded Pipe-Flange Joint	DOI:10.1243/095440805X69316. pp. 1-9.	2005	0.520
16	<b>Muhammad Abid</b>	International Journal of Mechanics and Materials in Design	1359-5997	Determination of safe operating conditions for non-gasketed flange joint under combined internal pressure and temperature	DOI: 10.1007/s10999-005-4447-2. Vol. 2, pp. 129-140	2005	0.892
17	<b>M. Abid</b> , M.G. Bannikov, J.A. Chattha, Himmat Ali	Scientific Journal VISNIK	1998-7927	3-D Finite Element Analysis of a diesel engine piston	Vol. 6 (80), pp. 103-106	2005	Not rated
18	M.G. Bannikov, <b>M. Abid</b> , J.A. Chattha, A. Salam	Scientific Journal VISNIK	1998-7927	Strength analysis of a crankshaft of an augmented diesel engine	Vol. 6 (80), pp. 97-101	2005	Not rated
19	<b>M. Abid</b> , D. H. Nash	International Journal of Solids and Structures.	0020-7683	Structural Strength: Gasketed Vs Non-gasketed flange joint under bolt up and operating condition	Vol. 43, pp. 4616-4629	2006	1.677
20	<b>Muhammad Abid</b>	International Journal of Pressure Vessels and Piping.	0308-0161	Determination of safe operating conditions for gasketed flange joint under combined internal pressure and temperature – A FEA approach	pp. 433-441	2006	1.293
21	<b>Muhammad Abid</b>	International Journal of Science and Technology, Scientia Iranica	1028-6284	Stress variation in flange of a gasketed flanged pipe joint during bolt up and operating conditions	Vol. 13/3, pp. 303-309	2006	0.283
22	<b>M Abid</b> and D H Nash	WSEAS Transactions on Applied and Theoretical Mechanics	1991-8747	Relaxation behaviour of a gasketed and non-gasketed bolted flanged pipe joint - A Comparative Study	Vol. 1, Issue-2, pp. 239-246	2006	0.150
23	<b>Muhammad Abid</b> , Baseer Ullah	Journal of Engineering Mechanics	0733-9399	Three Dimensional Nonlinear Finite Element Analysis of Gasketed Flange Joint under Combined Internal Pressure and Variable Temperatures	Vol. 133/2 pp. 222-229	2007	0.956
24	<b>M. Abid</b> , M. Iqbal	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	Determination of optimized non-gasketed flange geometry for safe stress and no leak condition: FEA Approach	Vol. 222, Part E, pp. 31-39	2007	0.520
25	Kh. S. Karimov, <b>Muhammad Abid</b>	Journal of Environmental Sciences, Technologies and Engineering	1684-8012	Solar Biogas Digester	Vol. VII No. 2, pp. 4-7	2007	Not rated
26	I. Salam, <b>M.</b>	International journal of	2074-	Crack growth prediction in a	Vol 1,	2007	Not

	<b>Abid, M.A. Malik</b>	systems applications, engineering & development.	1308	thick cylinder under fatigue loading – an FEA Study	Issue 3, pp. 51-55		rated
27	<b>Muhammad Abid, J. A. Chattha</b>	Asian Journal of Water, Environment and Pollution	0972-9860	Environmental problems associated with the paint sector in Pakistan and their assessment	Vol. 5, pp. 75-80	2008	0.416
28	<b>Muhammad Abid</b> and Saad Hussain	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	Bolt preload scatter and relaxation behavior during tightening a 4 inch, 900# flange joint with spiral wound gasket	Vol 222/2, pp. 123-134	2008	0.520
29	M A Malik, I Salam, and <b>M Abid</b>	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	Experimental and numerical study to predict crack growth in a thick cylinder under fatigue loading	Vol. 222, pp. 85-92	2008	0.520
30	Kh.S. Karimov, <b>Muhammad Abid</b> , I. Qazi, T.A. Khan, I. Murtaza	Journal of Environmental Sciences, Technologies and Engineering	1684-8012	Multi-Functional Organic Semiconductor Sensor for Environmental Monitoring	Vol. VII No. 1&2, pp. 20-27	2008	Not rated
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33	Muhammad Abid	Proc. IMechE Part E: J. Process Mechanical Engineering	0954-4089	Performance testing of gasketed flange joint under combined loading	Vol. 223, pp. 91-95	2008	0.520
34	<b>Muhammad Abid</b> , David H. Nash	J. Pressure Vessel Technology.	0094-9930	Stamina of a non-gasketed flange joint under combined internal pressure, axial and bending loading	Vol 131, Issue 3, 03120 3. pp. 1-7	2009	0.393
35	<b>Muhammad Abid</b> , Muhammad Iqbal, Baseer Ullah	Proc. IMechE, Part E: J. Process Mechanical Engineering,	0954-4089	Comparative thermal stress analysis of gasketed and non-gasketed flange joints	Vol. 223, pp. 167-178	2009	0.520
36	K. A. Khan, <b>M. Abid</b> , J. A. Chattha	Proc. IMechE, Part E: J. Process Mechanical Engineering,	0954-4089	Gasketed bolted flange joint's relaxation behavior under different bolt up strategy	Vol. 223/4, pp.259-263.	2009	0.520
37	Muhammad Rashid, Guangyuan He, <b>Muhammad Abid</b> and Yu Long Jiang	Journal of Environmental Sciences, Technologies and Engineering	1684-8012	Role of microorganisms in bioenergy production - Bioenergy the future demand	Vol. IX, No. 11&12, pp. 4-12	2009	Not rated
38	Riaz Muhammad, <b>Muhammad Abid</b> , Naseer Ahmad and Vadim Silberschmidt	Int. Journal of Machining and Forming Technologies.	1947-4369	3D modeling of drilling process of AISI 1010 steel	pp. 1-15	2009	Computing
39	<b>M. Abid</b> and	Turkish J. Eng. Env. Sci	1300-	3D thermal finite element	Vol. 33,	2009	

	M. J. Qarni		0160	analysis of single pass girth welded low carbon steel pipe-flange joints.	pp. 281-293		0.500
40	<b>Muhammad Abid</b> and Saad Hussain	SADHANA Indian Academy of Sciences Proceedings in Engineering Sciences	0256-2499	Relaxation behavior of gasketed flange joints during assembly using FEA	Vol. 35, part 1, pp 31-43	2010	0.290
41	Kh. S. Karimov, <b>Muhammad Abid</b>	Kuwait J. Sci. Eng.	024-8684	Investigation of a photo-voltaic system with variable solar modules inclination angles	Vol. 37 (1A), pp. 99-109	2010	0.250
42	<b>M. Abid</b> and M. J. Qarni	Proc. IMechE, Part E: J. Process Mechanical Engineering.	0954-4089	Numerical investigation of residual stresses and distortions due to multi-pass welding in a pipe flange joint	Vol. 224/4, pp. 253-267	2010	0.520
43	<b>Muhammad Abid</b> , Abdul Waheed Awan, David H. Nash	J. Engrg. Mech.	0733-9399	Performance of a non-gasketed flange joint under combined internal pressure and bending loading	Vol. 136, Issue 12, pp. 1519-1527	2010	0.956
44	Saif Ullah, Ghulam Zakria, <b>Muhammad Abid</b>	The Technology World Journal.	2180-1614	A Heuristic for Robust Scheduling of Two Machine Flow Shop	Vol. II, Issue 1. pp. 253-257.	2010	0.000
45	<b>Muhammad Abid</b>	The Technology World Journal.	2180-1614	Behavior of the gasketed flange joints of different sizes- A parametric FEA study	Vol. II, Issue 1. pp. 101-106	2010	0.000
46	<b>Muhammad Abid</b> and Khurshid Alam	The Technology World Journal.	2180-1614	Analytical and experimental study of Push Pipe Joints under internal pressure and temperature loading	Vol. II, Issue 1. pp. 282-293	2010	0.000
47	<b>Muhammad Abid</b> , Muftooh Ur Rehman Siddiqi	Journal of Water Resource and Protection	1945-3108	Multiphase Flow Simulations through Tarbela Dam Spillways and Tunnels	pp. 532-539	2010	0.410
48	<b>Muhammad Abid</b> , Adnan Aslam Noon	Journal of Engineering	1947-3931	Turbulent flow simulations through Tarbela Dam Tunnel-2	Vol. 2/7, pp. 205-213	2010	0.009
49	<b>Muhammad Abid</b>	IIUM Engineering Journal.	1511-788X	Comparative performance study of gasketed and non-gasketed flange joints under combined internal pressure, axial and bending loading - An experimental study	Vol. 11, No. 2, Pp. 179-200.	2010	0.090
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54	Kh.S. Karimov, <b>M. Abid</b> , M. Mahroof-Tahir, M. Saleem, Adam Khan, Z.M. Kariyeva, M. Farooq	Microelectronic Engineering	0167-9317	V <sub>2</sub> O <sub>4</sub> -PEPC composite based pressure sensor.	Vol. 88, pp. 1037–1041	2011	1.569
55	Khasan S. Karimov, <b>Muhammad Abid</b>	IIUM Engineering Journal, Special Issue in Science and Ethics	1511-788X	Combined uncovered sheet-and-tube PVT collector system with built-in storage water heater	Vol. 12, No. 6 pp. 1-7	2011	0.090
56	<b>Muhammad Abid</b> and Attar Rehman Shah	NED University Journal of Research	1023-3873	Performance of a gasketed bolted flanged pipe joint under boltup, internal pressure and dynamic (harmonic and transient) axial loads	Vol. VIII, No. 2. Pp. 62-69.	2011	HEC Y-Category
57	Kh.S. Karimov, <b>M. Abid</b> , M. Saleem, M. Farooq, Z.M. Kariyeva, Adam Khan	Arabian Journal for Science and Engineering (AJSE).	1319-8025	Cu <sub>2</sub> O-PEPC Composite Based Pressure Transducer.	37:1491–1498 DOI 10.1007/s13369-012-0239-9	2012	0.224
58	Khasan S. Karimov, <b>Muhammad Abid</b>	IIUM Engineering Journal	1511-788X	Solar biogas digester with built-in reverse absorber heater	Vol. 13, No. 2. pp. 109-120	2012	0.090
59	Muhammad Abid, Sattar Ullah	IIUM Engineering Journal	1511-788X	Investigation of Residual Stresses and Distortion in Welded Pipe-Flange Joint of Different Classes	Vol. 13, No. 2. pp. 145-154	2012	0.090
60	M. Abid, S. Parvez, D. H. Nash	Proceedings of the IMechE Part B. Journal of Engineering Manufacture	0954-4054	3D simulation of stationary gas tungsten arc welding of L-shape, V-shape and Open-corner joints	226 (8), 1354-1368	2012	0.725
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63	Muhammad Abid, Ali Waqas	Journal of Engineering Research	2307-1885	Analysis and Redesign of Bolster Beam of the Bogie Frame of a Locomotive	Vol -1 /1 pp. 271-287	2013	0.250

64	Khasan S. Karimov, Muhammad Abid	Mehran University Journal of Engineering and Technology	0254-7821	Solar biogas digester with built-in reverse absorber heater	Vol 32, No. 1, pp. 39-46	2013	HEC X-Category
65	Muhammad Abid and Yasir Mehmood Khan	Structural Engineering and Mechanics	1225-4568	The effect of bolt tightening methods and sequence on the performance of gasketed bolted flange joint assembly	Vol. 46, No. 6, pp. 843-852	2013	0.863
66	Khasan.S.Karimov, Khakim M. Akhmedov, Muhammad Abid, Georgiy N. Petrov	Science of the Total Environment (STOTEN)	0048-9697	Effective Management of Combined Renewable Energy Resource in Tajikistan	10.1016/j.scitotenv.2013.05.095 (pp. 1-4)	2013	3.789
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68	Kh.S. Karimov, M.Abid, S.I.Islomov, N.H.Karimova	IIUM Engineering Journal	1511-788X	The economics of biogas production	Vol. 14, No. 2, 2013. Pp. 145-152	2013	0.090
69	Kh.S. Karimov, M.Abid, M.W. Al-Grafi, S.I.Islomo, N.H.Karimova	IIUM Engineering Journal	1511-788X	The economics of micro hydro power plants	Vol. 14, No. 2, 2013. Pp. 173-181	2013	0.090
70	Kh.S. Karimov, M.Abid, S.I.Islomov, N.H.Karimova	NED University Journal of Research	1023-3873	The economics of photovoltaic installations in GIK Institute of Pakistan	Vol 10, No. 2. Pp. 1-7	2013	HEC Y-Category
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72	Muhammad Abid, M.W.Al-Grafi, Hafiz Abdul Wajid.	World Applied Sciences Journal	1818-4952	Effect of bolt behavior on the performance of a bolted joint	26 (1): 89-96, DOI: 10.5829/i.dosi.wasj.2013.26.01.1356	2013	0.234
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74	Kh.S.Karimov, M. Abid, N. Ahmed,	World Applied Sciences Journal	1818-4952	Rogun hydropower plant project of Tajikistan: expected benefits for neighboring	26 (2): 239-243, DOI:	2013	0.234



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76	Muhammad Abid, Abdul Waheed Awan, David H. Nash	Journal of the Brazilian Society of Mechanical Sciences and Engineering	1678-5878	Determination of load capacity of a non-gasketed flange joint under combined internal pressure, axial and bending loading for safe strength and sealing.	J Braz. Soc. Mech. Sci. Eng. DOI 10.1007/s40430-014-0136-0	2014	0.234
77	M. Abid	NED University Journal of Research	1023-3873	Parametric study of gasketed flange joints of different sizes and classes for improved design and performance	VOL XI, NO. 1, 2014. Pp. 39-47	2014	HEC Y-Category
78	Muhammad Abid, Khasan S. Karimov and Hafiz A. Wajid	Iranica Journal of Energy & Environment	2079-2115	Numerical and Experimental Analysis of a Spiral Horizontal Axis Wind Turbine	5 (1): 13-17, 2014 DOI: 10.5829/i dosi.ijee. 2014.5.1. 513	2014	1.0595
79	Muhammad Abid, Suleman Ayub, Humza Wali, Muhammad Najam Tariq	International Journal of Science and Advanced Technology	2221-8386	Reliability centered maintenance plan for the utility section of a fertilizer industry: A case study	4 (3), pp. 9-16	2014	Not rated
80	Muhammad Abid, Adnan Aslam Noon, M.W. Al-Grafi, Hafiz Abdul Wajid	Iranian Journal of Science and Technology-Trans of ME	2228-6179	Erosion study of Tarbela Dam Tunnel-1	Vol. 38, No. M1, pp 253-261	2014	0.400
81	Kh.S.Karimov, M.Abid, M.Saleem, Kh.M.Akhmedov, M.Mehran Bashir, U.Shafique, M.Ali	Physica B	0921-4526	Temperature gradient sensor based on CNT composite	446C. pp. 39-42.	2014	1.327
82	Kh.S.Karimov, Muhammad Abid, Cheong Kuan Yew, Nisar Ahmed, Muhammad Mehran Bashir, Zameer Abbas	Advanced Materials Research Trans Tech Publications, Switzerland	978-3-03835-213-6	Silicon Based Thermoelectric Cells with Built in Solar Cells and CNT Composite Based Thermoelectric Cells for Measurement of Gradient of Temperature	Vol. 1024, pp 385-392 doi:10.4028/www.scientific.net/AMR.1024.385	2014	0.000
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84	Muhammad Abid, Kamran Ahmed Khan, Javed Ahmad Chattha, Hafiz Abdul Wajid	IIUM Engineering Journal	1511-788X	Sealing performance of gasketed flange joints – A parametric study	Vol. 15, No. 2, pp. 59-67	2014	0.0190
85	Muhammad Abid, Khasan S Karimov, Hafiz Abdul Wajid, Fahmid Farooq, Haroon Ahmed, Omar Hafeez Khan	Iranica Journal of Energy and Environment	2228-6179	Design, Development and Testing of a Combined Savonius and Darrieus Vertical Axis Wind Turbine	Vol. 6, No. 1, pp. 15-18	2015	1.057
86	Muhammad Tariq Saeed Chani, Sher Bahadar Khan, Kh. S. Karimov, M. Abid, M. Mehran Bashir, Abdullah M. Asiri, Kalsoom Akhtar	Journal of Optoelectronics and Advanced Materials - Rapid Communication		Influence of pressure on the impedance of SnO <sub>2</sub> nanopowder	Vol. 9, No. 1-2, pp. 114 - 119	2015	0.563
87	Muhammad Abid, Muhammad Hammad Akmal, Hafiz Abdul Wajid	Iranian Journal of Science and Technology–Trans of ME	2228-6179	Design optimization of box type girder of an overhead crane	Vol. 39 No M1 April	2015	0.400
88	Muhammad Abid, Ahmad Abbas, Yasir Mehmood, Hafiz Abdul Wajid	Iranian Journal of Science and Technology–Trans of ME	2228-6179	Assembly performance of a gasketed bolted flanged pipe joint using different bolt tightening strategies	Vol. 39 No M2 October	2015	0.400
89	Muhammad Tariq Saeed Chani, Sher Bahadar Khan, Kh. S. Karimov, M. Abid, Abdullah M. Asiri, Kalsoom Akhtar,	Journal of Semiconductors		Synthesis of metal oxide composite nanosheets and their pressure sensing properties	Vol. 36/2, pp. 1-6	2015	
90	Muhammad Abid, Atta ur Rehman Shah, Hafiz Abdul Wajid.	Sadhana - Academy Proceedings in Engineering Science <a href="http://sadh.edmgr.com/">http://sadh.edmgr.com/</a>	2228-6179	Analysis of a gasketed bolted flanged pipe joint under bolt up, internal pressure and dynamic (axial and bending) loading.	In review	2015	0.400
91	Muhammad Abid, Sattar Ullah, Hafiz Abdul Wajid	Iranian Journal of Science and Technology–Trans of ME	0257-9731	Parametric study for residual stresses and deformations in welded pipe-flange joints	In review	2015	0.274

92	Muhammad Abid, Shehbaz Mehmood Khan, Hafiz Abdul Wajid	Journal of the Brazilian Society of Mechanical Sciences and Engineering	1678-5878	Optimization of box type girders with and without industrial constraints	In review	2015	0.234
93	Zeeshan Ahmed, Muhammad Abid	Engineering Computations by Emerald		Nonlinear Response Topology Optimization using Equivalent Static Loads - Case Studies	In review	2015	
94	Muhammad Abid, Muhammad Shahid Khalil, Hafiz A. Wajid	IIUM Engineering Journal	1511-788X	Loss of pre-load in the bolts with time	In press	2015	0.019
95	Muhammad Abid, Muhammad Zohair Iqbal, Shayan Najam, Ali Arshad, Ammad Ahmad	Iranian Journal of Science and Technology-Trans of ME	2228-6179	Design and Analysis of an Aerodynamic Downforce Package for a Formula Student Race Car	In review	2015	0.400
96	Muhammad Abid, Mujahid Naseem, Hafiz Abdul Wajid	IIUM Engineering Journal	1511-788X	Selection of optimum truss geometry – A comparative study	In review	2015	
97	Muhammad Abid and Niaz Bahadur Khan	JPME		Joint Strength of gasketed bolted pipe flange joint under combined internal pressure plus axial load with different (Industrial and ASME) bolt up strategy	In progress	2015	
98	Muhammad Abid and Jamal Saeed	JPME		Sediment and cavitation erosion studies through Tarbela dam tunnel 2 and 3	In progress	2015	
99	Muhammad Abid, Ayesha Khan, Hafiz Abdul Wajid	Sadhana - Academy Proceedings in Engineering Science <a href="http://sadh.edmgr.com/">http://sadh.edmgr.com/</a>	2228-6179	Optimized bolt tightening procedure for different tightening strategies - FEA study	In review	2015	0.400
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7. **Muhammad Abid**, Adnan Aslam Noon, Muftooh ur Rehman. Water and Sediment Flow Simulations for Tarbela Reservoir and Tunnels. VDM Verlag Dr.Muller, printed in the U.S.A. and in the U.K. 2011. ISBN: 978-3-639-34183-6.
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1. Webjorn J, Abid M, “A modern, alternate pipe joint”, Published in Valve World Magazine, Volume 7, Issue 1, February 2002.

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#### **H. CONFERENCE PARTICIPATIONS**

Papers presented in conferences at Cambridge UK, Calgary Canada, Istanbul Turkey, Bahrain, South Africa, China, Egypt and Pakistan.

## **Statement of Teaching Interests**

**a) TEACHING: 16 Years**

(GIKI = 14 Years, University of Strathclyde Glasgow, UK = 03 Years)

**b) Undergraduate courses taught at GIKI:**

- Mechanical Engineering Design (ME362)
- Stress Analysis (ME416)
- Dynamics (ME212)
- CAD/CAM and its Labs (ME418)
- Finite Element Methods (ME466)

**c) Postgraduate courses taught at GIKI:**

- Advanced Stress Analysis (ME514)
- Applied Finite Element Analysis (ME516)
- Product Design (ME561)
- Design Optimization and Analysis Techniques (ME583) under Asia Link project
- Design Management and Prediction (ME590) under Asia Link project
- Modeling, Simulation and Visualization (ME589) under Asia Link project
- Case Studies in Advanced Heat Transfer (ME586) under Asia Link project

**d) Graduate courses planned to be offered for industry and academia in 2010**

- Pressure Vessel Design
- Thin Walled Structures

**e) Total Lab supervisions: 03 Nos.**

**f) Graduate Curriculum developed and offered at GIKI successfully**

- Advanced Design and Manufactures with EU partners
- Computational Mechanics with US partners
- Product Design Engineering (In progress)

**g) Specialized courses/seminars/workshops/seminars offered to the industry and academia**

I have coordinated and offered following Workshops and Short Courses and can offer for academia, industry and research organizations

1. Computer-Integrated Product Design and Manufacturing
2. Introduction to Finite Element Analysis using ANSYS
3. CAD/CAM for Mechanical Component Design and Manufacturing
4. Design, Management and Prediction
5. Modeling, Simulation and Visualization
6. Materials Design and Materials Processing
7. Advanced Stress Analysis
8. Design Optimization and Analysis Techniques
9. Advanced Heat Transfer and CFD with case studies
10. Introduction to CFD using ANSYS CFX Introduction to FEM using ANSYS – Basic
11. Introduction to FEM using ANSYS – Advanced
12. Pressure Vessel Design
13. Thin Wall Structures

**h) Teaching Methodology**

- Audio and Visual aids, Online teaching and tutoring, Interactive teaching, Industrial visits, use of Tablet, Board and other related tools.

## Brief Statement of Research Interests

In the realm of engineering, I have developed a special interest in the field of Numerical and Experimental Analysis. I have been the member of the team to start graduate program at GIKI, and to-date, I have the honor to graduate 5 PhD students and more than 30 MS students. In addition, I have supervised and evaluated 10 graduate students of other institutions in Pakistan. Keeping in view the need of graduate program, I have the honor to complete three international projects; Asia Link from EU in the area of **Advanced Design and Manufacture**, Pak-US project from USAID and HEC Pakistan in the area of **Computational Mechanics and Research Infrastructure Development** under Islamic Development Bank. I have developed **Industrial Engineering** Curriculum which is ready to be offered. In all the projects infrastructure and graduate programs are developed and started successfully with graduating students and training more than 1000 personnel from academia, industry and research organizations. I have also completed 5 national projects funded by Pakistan Science Foundation and industry. Two more projects are in progress and are near completion. This shows my aim to be working with the community of science and technology to benefit the humanity.

Based on my contribution in the area of Engineering and Technology, I was awarded Pakistan Academy of Sciences Gold Medal Award in 2006, Best Researcher Award 2005-2006 by Higher Education Commission of Pakistan, MOSS Prize 2008 for best industrial research, Best University Award by HCE, UK Chartered Engineer title and FIMechE memberships. At GIK Institute. I have also the honor of post 6 post docs in US, UK, Taiwan and China.

I am actively involved in research and have published 78 journal and 110 international conference papers, 12 Books, article in trade journal and many technical reports. It is in R & D that I believe I can make the greatest contribution, utilizing my theoretical background and creativity as a researcher and contributor. I act as advisor on many committees including Board of studies, curriculum committees and Selection board, reviewers of journals, conferences and thesis.

### RESEARCH INTERESTS AND EXPERTISE

- Bio inspired Sensing and Bio inspired Actuation
- Alternate energy technologies including power production using photovoltaic systems, Biogas, Micro hydro Power Plants etc.
- Design and Analysis of Gasketed and Non-Gasketed Bolted Pipe Joints under combined loading applications such as axial, bending and internal pressure loadings to determine actual joint load capacity using experimental, analytical and Numerical techniques.
- Performance evaluation of bolted flanged pipe joints under combined internal pressure and thermal loading using experimental, analytical and Numerical techniques.
- Study of gasketed bolted flanged joint relaxation behavior and optimization to for better joint performance using experimental, analytical and Numerical techniques.
- Welding Deformation and residual stress measurement studies using experimental, analytical and Numerical techniques.
- Water and sediment flow simulations through Tarbela dam reservoir and tunnels.
- Cavitation and erosion analysis of Francis Turbine blades, casing and air relief valves.
- Erosion rate measurements using different sizes, shapes and quantity of particles.
- Surface sensitivity and reliability analysis studies of non-gasketed joints using experimental techniques.
- Design, Analysis and Testing of Push Pipe Joints using experimental, analytical and Numerical techniques.
- Design optimization of Overhead Crane Girders using analytical and Numerical techniques.
- Application of Modular Design approaches and Enterprise Engineering
- Simulation and modeling of high speed machining and cutting using numerical techniques.
- Leak detection systems study and implementation
- Leak rate measurement using experimental, analytical and numerical techniques.
- Development of adaptive mesh generation algorithms and code parallelization for high performance computing.
- Development of moving mesh techniques.

## References

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