

C.V.

Research Fields

CFD, Modal Analysis, Renewable Energy, Composite Materials.

Employment Status

Lecturer,
Department of Mechanical Engineering,
Faculty of Engineering & Technology,
International Islamic University,
H-10, Islamabad, Pakistan.

Software Skills

- ANSYS Fluent
- MATLAB Partial Differential Equation Toolbox

Industrial Experience

- ISO Internal Auditor
- Reliability Department
- Maintenance Engineer

Contact Information

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DME, FET, IIUI, H-10, Islamabad
Capital Territory, Pakistan.

Dr. Engr. Muhammad Ishfaq Khan
PhD
Professional Engineer (PEC)

Innovative educator and researcher with 14+ years of professional experience blended with industrial and entrepreneurial interests. I have been trained in Sweden to meet international market demands in a sustainable manner. Possessing CFD, Modal Analysis and Renewable Energy expertise expressed through award winning final year projects and peer reviewed publications. Committed to Outcome Based Education and

Research & Development

I am active in Research and Development activities at the department with a special focus on solution to the indigenous issues and challenges since 2013 as a Faculty Member. My output in this capacity is summarized below:

| <i>Final Year Projects</i> | <i>MS/PhD Students</i> | <i>Publications</i> |
|---|--------------------------|-----------------------------|
| 04 have earned distinctions at Pakistan level | 02 active MS researchers | 02 Journal 01 conference |

Financial Grants

1. Design and Fabrication of Solar Heat Cell Using Phase Change Materials (2017)

- ❖ Scored grant of 1 lakh Rupees from Mr. Arshad Jamil of Education Innovations, New Jersey, USA.
- ❖ Mr. Bilal Anwar of the students got selected in USAID Project at UET, Peshawar.

4. Design & Fabrication of Cricket Bowling Machine (2015)

- ❖ A grant of 60,000/= PKR was granted by Sports Section of the university and the project is being used by the Sports Section during practice sessions by the Cricket Coach Mr. Naseer.

Publications:

I have authored the following peer reviewed research papers in HEC recognized journal:

1. M. I. Khan, S. A. Masood, S. Zahid, "Numerical and Experimental Study of Drag and Vortex Shedding across Smooth Circular Cylinder with Attached Rigid Bilateral Splitter Plates in Sub-Critical Regime for Landing Gear", Technical Journal, University of Engineering and Technology (UET) Taxila, Pakistan Vol. 25 No. 3-2020 ISSN:1813-1786 (Print) 2313-7770 (Online)., (2020).

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Entrepreneurial Activities

- Started **Bay Engineering Company (SMC)** that is hibernated due to employment in autonomous body.
- Got into **vegetable farm management at my inherited agricultural land in my hometown** with encouraging results in personal and professional capacity. I got insight into tunnel farming with vertical stacking technique. I have achieved 80% of the yield claimed by the seed providers.

Graduate Research

- 1 MS researcher is at synopsis compilation stage in the field of Renewable Energy in April, 2026. The research
- 1 MS student is at title defense stage of the topic pertaining to composite materials related to agriculture

Graduate Courses

- Advanced Numerical Analysis (MS)
- Advanced Mechanical Vibrations (MS)
- Non-Linear Mechanical Vibrations (PhD)
- Modal Analysis (PhD)

Under-graduate Courses

- Engineering Mechanics-II/ Dynamics (BSME, BETech)
- Engineering Mechanics-I/ Statics (BSME, BETech)
- Mechanical Vibrations (BETech)
- Health, Safety and Environment (BSME)
- Finite Element Methods (BSME)

2. M. I. Khan, S. A. Masood, "Numerical Investigation of Vortex Shedding and Flow Around a Smooth Circular Cylinder in Upper Transition Regime by Using URANS", Technical Journal, University of Engineering and Technology (UET) Taxila, Pakistan Vol. 25 No. 1-2020 ISSN:1813-1786 (Print) 2313-7770 (Online), (2020).

3. Muhammad Ishfaq Khan, Liaquat Ali Najmi, Habib-Ur-Rehman Khan, Heat "Estimation of Roadside Herbs: Wah Cantt, Taxila", 2nd PGSRET International Conference, Islamabad. ISBN: 978-1-4673-6812-4, (2015) ISBN: 978-1-4673-6812-4

Research Mentorship:

Leading one MS scholar in Forrest Biomass Renewable Energy to defend his thesis and guiding another MS scholar to defend his agriculture based Composite Materials in the upcoming Graduate Research Committee. I am Targeting publication in Scopus-indexed Q1/Q2 journals (Biomass, Bioenergy and Sustainable Agri-based Composite Materials) by the end of 2026.

Technical Awards & Distinctions

1. Design & Fabrication of Motorbike Driven Plough for Small Farmers in Pakistan (2022)

- ❖ **Incubated** at Incubation Centre of Ghulam Ishaq Khan Institute, Topi, KPK, Pakistan in 2022-2023.

2. Design and Fabrication of Chick Counting & Weighing Machine (2018)

- ❖ Scored **3rd position** at Final Year Project Competition FETEX 2018 in DME, FET, IIUI, Islamabad, Pakistan.

3. Design & Fabrication 5-Axes CNC Milling Machine (2016)

- ❖ Scored **3rd position** at Final Year Project Competition FETEX 2016 in DME, FET, IIUI, Islamabad, Pakistan.
- ❖ Scored **1st position** at All Pakistan Final Year Project Competition held at University of Gujrat, Punjab, Pakistan in 2016.

4. Design & Fabrication of Cricket Bowling Machine (2015)

- ❖ Scored **2nd position** at Final Year Project Competition FETEX 2015 in DME, FET, IIUI, Islamabad, Pakistan.
- ❖ Scored **1st position** at All Pakistan Final Year Project Competition held at University of Gujrat, Punjab, Pakistan in 2015.

5. Heat Content Estimation of Roadside Herbs along GT Road: Wah Cantt, Taxila (2014)

- ❖ A **conference paper** was presented based on FYP at 2nd PGSRET International Conference, Islamabad. ISBN: 978-1-4673-6812-4, (2015) ISBN: 978-1-4673-6812-4

Professional Experience

I started my professional career as an Assistant Manager in Cement Sector in Pakistan in 2007 after graduating from UET Lahore. In pursuit of enhancing my understanding of Engineering Principles being employed in Industrial Sector, I sought MS from Sweden followed by a Ph.D. in Mechanical Engineering from Pakistan as an Academic and an applied researcher. My professional career is summarized as below:

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Educational Credentials

1. Ph.D. in Mechanical Engineering Design
 - International Islamic University, Islamabad. (2014-2021)
2. MS in Mechanical Engineering with emphasis on Structural Mechanics
 - Blekinge Tekniska Hogskolan, Karlskrona, Sweden, (2008-2012)
3. B.Sc. in Mechanical Engineering
 - University of Engineering and Technology Lahore, Pakistan, (2003-2007)

Professional Experience

| <i>Industry</i> | <i>Title</i> | <i>Duration</i> |
|--|-------------------|--|
| International Islamic University, Islamabad, Pakistan | Lecturer | <ul style="list-style-type: none">▪ June, 2014- to Date▪ 11 Years 11 Months |
| Swedish College of Engineering & Technology (U.E.T., Taxila), Wah Cantt., Rawalpindi, Pakistan | Lecturer | <ul style="list-style-type: none">▪ Dec. 2012- May, 2014▪ 1 Year & 6 Months |
| Maple Leaf Cement Factory, Iskanderabad, Mianwali, Pakistan | Assistant Manager | <ul style="list-style-type: none">▪ July, 2007- Aug, 2008▪ 1 Year 2 Months |

Lecturer

*International Islamic University, Islamabad, Pakistan, June, 2014- to Date
(10 Years 11 Months)*

1. Academic Excellence:

I have exhibited academic excellence by teaching core courses at Graduate and Undergraduate level in compliance with requirements of Washington and Sydney Accords.

My teaching philosophy pivots around Problem Based Learning (PBL) coupled with Complex Engineering Problems (CEP). I systematically encourage students to correlate a problem of their choice to a real-life scenario. This ensures that students develop and hone the skills of identification, application and analysis of a problem in their routine lives.

RUBRICs are designed at cohort level to ensure that students perform at par with the CLOs and PLOs designated for the specific course.

2. Program Accreditation Process:

I am member of **Departmental Quality Assurance Committee (DQAC)**. As part of DQAC team, we ensure **OBE implementation** in accordance **Washington Accord and Sydney Accord** to get the programs accredited with Pakistan Engineering Council and National Technology Council, respectively. DQAC also assists Chairman/HOD to **close the OBE loop**.

3. Research & Development Activities

As a PhD Faculty Member, I am part of **Graduate Research Committee (GRC)** that reviews research proposals of scholars. I have been known to provide professionally sound input to the research in the capacity of a member of the prestigious forum. I am supervising 02 MS scholars in the department at the moment in addition to 02 Final Year Projects of undergraduate students.

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Hobbies

➤ Travelling & Tourism

Own 150 cc Suzuki Motorbike to go on expeditions in solo and in group
Go on long walks and hiking in Islamabad

➤ Cooking in Wilderness

Own portable setup to prepare BBQ, frying and curry in wilderness

➤ Photography

Own a Facebook page "IIU at its Best"

Languages

- Urdu
- English
- French

Professional Experience

4. Administrative and Managerial Roles

I have been involved in the following administrative and managerial roles in the department:

1. Lab Manager 06 Months
2. In-charge Evening Undergraduate Program
3. In-charge of Open House different sub-committees
4. Member Industrial Liaison Committee
5. Area In-charge of Entry Tests
6. Member Departmental Board

Lecturer

Swedish College of Engineering & Technology (U.E.T., Taxila), Wah Cantt., Rawalpindi, Pakistan, Dec. 2012-May, 2014
(1 Year & 6 Months)

1. Program Accreditation Process

I compiled Annual Report 2013-2014 of the College that carried vital 2 PCPs (Professional Credit Points) for the organization in getting PEC accreditation.

2. Administrative and Managerial Roles

I administered and managed conduct of Final Year Project related activities of the department as FYP Coordinator.

3. Academic Excellence

I taught Machine Design, Tribology and FEM to ensure that PEC and HEC regulations for accreditation requirements are met.

Assistant Manager

Maple Leaf Cement Factory, Iskanderabad, Mianwali, Pakistan.
July, 2007-Aug, 2008
(1 Year & 2 Months)

1. ISO Internal Auditor

I was internal ISO Auditor for the Mechanical Department to ensure ISO Accreditation for the line. I audited relevant documentation and ensured that mechanical wing complied with the procedures prescribed by the ISO Team Leader for the line.

2. Assistant Manager Crusher Area

As a team lead of a supervisor, a fitter, a welder and 4 helpers, I ensured 24/7 availability of limestone and iron ore crush to Raw Mill Area.

3. In charge Reliability Department

I was In-charge of White Cement Line. I verified implementation of Reliability procedures across the line and maintained the relevant documentation.

4. ERP Implantation

I supported department by assisting sorting of inventory items to implement ERP on behalf of head of Mechanical Department of the line.