

## LIST OF PUBLICATIONS

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Department of Mechanical Engineering  
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### Thesis Publications:

Post Doctoral Research : “Dynamic Simulation of a Hydraulic Excavator Arm”  
(Under a Post-Doctoral Fellowship, 2005, – University of Edinburgh, UK)

Ph.D Thesis Title : "A New Type of Malone Engine with Digital-Displacement Hydraulic Drive".  
(Under Commonwealth Scholarship Program, awarded from 1993 to 1997, Univ. of Edinburgh, UK)

M.Sc Thesis Title : "Study of the Effect of Spark advance on Gas run Petrol Engine". 1993, BUET

B.Sc Thesis Title : "Design, Fabrication and Performance Test of a Vortex Tube". 1991, BUET

### **LIST OF PAPER PUBLICATIONS :**

#### **Journals :**

- (1) Ehsan Md., Sarker M., Mahmud R., Riley H. P., “Performance of a Score-Stove with a Kerosene Burner and the Effect of Pressurization of the Working Fluid”, *Journal of Power and Energy Engineering*, Scientific Research Publishing, Vol-3, pp. 458-466, 2015. [<http://dx.doi.org/10.4236/jpee.2015.34063>].
- (2) Ehsan M., Barman S., Buiyan S., “Low Pressure CNG System for Diesel Power Generation”, Paper No. W09-0010, *Journal on Power and Energy Engineering (OJPEE)* Vol. (1) – No. (2), June 2010.
- (3) Ehsan Md., Rahman M., and Saadi H. M., “Effect Of Fuel Adulteration On Engine Crankcase Dilution”, Paper No. JMED-2009/34, *Journal of Mechanical Engineering(IJME)*, Institution of Engineers Bangladesh (IEB), Dhaka, accepted for publication, December 2010.

- (4) Ehsan Md. and Bhuiyan S., "Dual Fuel Performance of a Small Diesel Engine for Applications with Less Frequent Load Variations", Paper no. 97510-7373, *International Journal of Mechanical & Mechatronics Engineering IJMME*, Vol: 9 No: 10, 2009.
- (5) Ehsan Md., "Effect of Spark Advance on the Performance of a Gas Run Automotive Spark Ignition Engine", Vol CheE24, No.1, pp 42-59, *Journal of Chemical Engineering*, Institution of Engineers Bangladesh (IEB), Dhaka, December 2007.
- (6) Payne G. S., Kiprakis A., Ehsan M., Rampen W. H. S., Chick J. P., Wallace R., " On the Efficiency and Dynamic Performance of Digital Displacement™ Hydraulic Transmission in Tidal Current Energy Converters", Paper No. JPE298, *Journal of Power and Energy*, Part A : *Proceedings of IMechE*, Volume 221, pp. 207-217, May 2007.
- (7) Ehsan Md. and Naznin N., "Performance of a Bio-Gas Run Petrol engine for Small Scale Power Generation", pp. 1-9, Volm. 4, *Journal of Energy and Environment*, published by Center of Energy Studies, BUET, Dhaka, Bangladesh, May 2005.
- (8) Ehsan Md. and Alam M. S., "Effect of Independent Gas Flow Control on the Performance of a Fixed-Speed Gas Run SI Engine", pp 71-79, paper No. JMED-128/ ME33, June 2004 Vol., *Journal of Mechanical Engineering*, Institution of Engineers Bangladesh (IEB), Dhaka, June 2004.
- (9) Ehsan Md., Sarkar M.R.A, Obaidullah M. and Islam M.A, "Pre Feasibility of Cogeneration in a Paper Recycling Mill in Bangladesh" published in *Chiang Mai University Journal*, Vol 2 No. 1 pp. 27-35, Thailand, April 2003.
- (10) Sarkar M.R.A. and Ehsan Md., "Solar Thermal Applications : The Bangladesh Perspective", *International Energy Journal*, published by RERIC, Asian Institute of Technology, Thailand, December 2003.
- (11) Ehsan Md, Rampen W.H.S and Salter S.H, "Modelling of Digital-displacement Pump-Motors and their Application as Hydraulic drives for Non-uniform Loads", *Journal of Dynamic Systems, Measurement and Control, Transactions of ASME*, pp.210-215, Vol.122, March 2000.
- (12) Alam M. S. and Ehsan Md., "Performance of a Gas Run Petrol engine for Small Scale Power Generation", *Journal of Energy and Environment*, pp.101-107, Vol. 1, November 1999.
- (13) Sarkar M.A.R., Ehsan Md., Obaidullah M., Huq Aziz-Ul A.M., "Techno-Economic Viability of Cogeneration in a Commercial Building in Bangladesh", *Journal of Energy and Environment*, pp.71-78, Vol. 1, November 1999.

## International Conferences (Outside Bangladesh) :

- (1) Ehsan Md., Sarker M., Mahmud R., Riley H. P., “Performance of a Score-Stove with a Kerosene Burner and the Effect of Pressurization of the Working Fluid”, 7<sup>th</sup> Asia –Pacific Power and Energy Engineering Conference (APPEEC 2015), Beijing, China, 12-14 April, 2015.
- (2) Ehsan Md., “Sustainable Transportation : Experiences of Dhaka City”, Invited paper, 5<sup>th</sup> Japan-SAARC Enrgy Symposium2012, 2-3 March, Colombo, Srilanka, 2012.
- (3) Ehsan M., Barman S., Buiyan S., “Low Pressure CNG System for Diesel Power Generation”, Paper No. 038, Proceedings of The 2009 World Congress on Power and Energy Engineering, WCPEE'09, 5-8 October, Cairo, Egypt, 2009.
- (4) Payne G. S., Stein U., Ehsan M., Caldwell N., Rampen W.H.S., “Potential Of Digital Displacement Hydraulics For Wave Energy Conversion”, pp. 365-371, *Proceedings of 6<sup>th</sup> European Wave and Tidal Energy Conference*, Glasgow, UK, 29 Sept – 2 October 2005.
- (5) Abedin M. Z., Ehsan M., Sarkar M.A.R, “ Heat Transfer through a Tube with Wire Coil-Inserts at Low Turbulent Raynolds Number”, pp. 110-118, *Proceedings of 31st National Conference on Fluid mechanics and Fluid Power*, 16-18 December 2004 organised by Dept. of Mechanical Engineering, Jadavpur University, Kolkata, India, 2004.
- (6) Ehsan Md., Bhuiyan M.S.A., Naznin N., "Multi-Fuel Performance of a Petrol Engine for Small Scale Power Generation", Paper No. 2003-32-0063 (03SETC-41), *Proceedings of Small Engine Technology Conference and Exhibition, Sec 10 : pp. 7-13, SETC2003*, Madison, WI, USA, 16-18 September 2003.
- (7) Ehsan Md., Rampen W.H.S, “Using Digital-Displacement Hydraulic Drive for Controlling Piston Motion of Heat Engines”, TH-11/1 pp. 993-1000, *Proceedings of 2nd International Conference on Fluid Mechanics and Fluid Power*, IIT-Roorkee, India, December 12-14, 2002.
- (8) Sarkar M.A.R., Ehsan Md. and Obaidullah M., “Performance of a solar Lantern”, Accepted for publication in the *Proceedings of World Energy Congress VII*, Cologne, Germany, 29 June – 5 July, 2002.
- (9) Sarkar M.A.R., Ehsan Md. and Obaidullah M., “Solar PV Submersible Water Pumping for Small Scale Use in Bangladesh”, *International Workshop on Renewable Technologies for Clean and Sustainable Development*, Amman, Jordan, 26-29 March, 2002.
- (10) Rampen W.H.S, Ehsan Md. and Stein U, “A Digital-Hydraulic Power Take-off for Stirling-Cycle Engines”, *Proceedings of 8th International Stirling Engine Conference and Exhibition*, No. ISEC 97083, pp.601-612, Ancona, Italy, 27-30 May, 1997.

- (11) Ehsan Md, Rampen W.H.S and Salter S.H, “Computer Simulation of the Performance of Digital-Displacement Pump-Motors”, *Proceedings of ASME International Mechanical Engineering Congress and Exposition*, FPST Volume-3, pp.19-24, Atlanta, USA, November 1996.
- (12) Ehsan Md, Rampen W.H.S and Taylor J.R.M, “Simulation and Dynamic Response of Computer Controlled Digital Hydraulic Pump/Motor System Used in Wave Energy Power Conversion”, *Proceedings of 2nd European Wave Power Conference*, pp. 305-311, Lisbon, Portugal, 8-10 Nov. 1995.
- (13) Rampen W.H.S, Ehsan Md, Almond J.P, Taylor J.R.M and Salter S.H, “Progress on the Development of the Wedding-Cake Digital Hydraulic Pump-Motor”, *Proceedings of 2nd European Wave Power Conference*, pp. 289-296, Lisbon, Portugal, 8-10 Nov. 1995.

### **International Conferences (Inside Bangladesh) :**

- (1) Ehsan Md., Sarker M., Mahmud R., Riley H. P., “Performance of an Electricity-Generating Cooking Stove with Pressurized Kerosene Burner”, *Procedia Engineering* 105 (2015), Elsevier Science Direct, pp. 619-627, *6th BSME International Conference on Thermal Engineering (ICTE 2014)*, IUT, Dhaka 20-21 December, 2014.
- (2) Ehsan M., Chowdhury M.H.T., , “Production of Biodiesel Using Alkaline Based Catalysts From Waste Cooking Oil: A Case Study”, *Procedia Engineering* 105 (2015), Elsevier Science Direct, pp. 638-645, *6th BSME International Conference on Thermal Engineering (ICTE 2014)*, IUT, Dhaka 20-21 December, 2014.
- (3) Hossain N B., Ahmed T., Ehsan M. and Mamun M., “Design and Performance Evaluation of a Light-Weight Passenger Vehicle Using Regular Octane and Bio-fuel”, *Procedia Engineering* 90 (2014), Elsevier Science Direct, pp. 605-610, *10th International Conference on Mechanical Engineering*, BUET, Dhaka 20-22 December, 2013.
- (4) Atis. C., M., Sarkar M. and Ehsan M., “ Study of Thermoacoustic Phenomenon In a Rijke Tube”, *Procedia Engineering* 90 (2014), Elsevier Science Direct, pp. 569-574, *Proceedings of the 10th International Conference on Mechanical Engineering*, BUET, Dhaka 20-22 December, 2013.
- (5) Bhuiyan M. Y., Bairagi K. and Ehsan Md., “Finite Element Analysis Of A Cng Converted Diesel Engine Piston For Optimum Dimensions” paper no. ICME11-AM-033, pp. 1–6, *Proceedings of the 9th International Conference on Mechanical Engineering*, BUET, Dhaka 18-20 December, 2011.

- (6) Mahbub M. A. H. M., Rahman I. and Ehsan Md., “Study Of Existing Rickshaw And Possible Design Modifications” paper no. ICME11-RT-024, pp. 1–6, *Proceedings of the 9th International Conference on Mechanical Engineering*, BUET, Dhaka 18-20 December, 2011.
- (7) Saha S. C., Goswami A. and Ehsan Md., “Design And Development Of An Electric Hybrid Rickshaw” paper no. ICME11-RT-032, pp. 1–6, *Proceedings of the 9th International Conference on Mechanical Engineering*, BUET, Dhaka 18-20 December, 2011.
- (8) Ehsan M., Kabir M. N. I., Reaz S. and Sultana S. “Non-Conventional Use Of Small Diesel Engines : Case Studies”, paper no. ICME09-TH-26, pp. 1–6, *Proceedings of the 8th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, 2009.
- (9) Chowdhury M. S. and Ehsan M., “Performance Of A Biogas Run Stirling Generator”, paper no. ICME09-TH-29, pp. 1–6, *Proceedings of the 8th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, 2009.
- (10) Ehsan M., Taposh R. M., Islam M. M., “Running a Diesel Engine with Biodiesel”, paper no. ICME2007-TH-34, pp. 1–4, *Proceedings of the 7th International Conference on Mechanical Engineering*, BUET, Dhaka 29-31 December, 2007.
- (11) Ehsan M., Rahman M. M., Saadi H. M., “ An Investigation On Increase Of Volume Of Lubricating Oil Used In Vehicles Around Dhaka City”, paper no. ICME2007-TH-18, pp. 1–5, *Proceedings of the 7th International Conference on Mechanical Engineering*, BUET, Dhaka 29-31 December, 2007.
- (12) Ehsan M., Shah M. Z., Hasan M., Hasan S. M. R., “Study of Temperature Profile in Automotive Exhaust Systems for Retrofitting Catalytic Converter”, paper no. ICME2005-TH-34, pp. 1–6, *Proceedings of the 6th International Conference on Mechanical Engineering*, BUET, Dhaka 28-30 December, 2005.
- (13) Sarkar M.A. R., Hasan A. B. M. T., Ehsan M., Talukder M. A., Haq A. M. A., “Heat transfer in Turbulent Flow Through Tube with Longitudinal Strip Inserts”, paper no. ICME2005-TH-46, pp. 1–6, *Proceedings of the 6th International Conference on Mechanical Engineering*, BUET, Dhaka 28-30 December, 2005.
- (14) Ehsan Md., Islam M Z, Haque S, “Computerised Car Diagnostic Centres : Dhaka Scenario” pp. 113-119, *Proceedings of 4th International Mechanical Engineering Conference & 9th Annual Paper Meet*, organised by Mechanical Engineering Division, Institution of Engineers, Bangladesh, 29-31 December, Dhaka, Bangladesh, 2004.
- (15) Ehsan Md. and Nur M. Al., “Controlling Emissions from Conventional Road Transports:

- Dhaka Situation”, paper no. ICME2003-TH-27, pp. 1–5, *Proceedings of the 5th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, 2003.
- (16) Ehsan Md. Imtiaz Hossain Md., “The Role of Small Diesel Engines in Rural Bangladesh During the Flood of 1998”, *Engineering Concens of Flood*, BUET Proceedings, pp. 319-330, August 2002.
- (17) Ehsan Md., Rahman Z. S.M., Javed M. K, Mahboob M, “Performance Of A LPG Run SI Engine For Small Scale Power Generation”, *Proceedings of the 4th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, pp. 97-102, Vol. 2, Sec III, December 2001.
- (18) Mamun M., Ehsan Md, “Effect Of Coolant Temperature On Performance of a SI Engine”, *Proceedings of the 4th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, pp. 235-241, Vol. 2, Sec III, December 2001.
- (19) Ehsan Md, Haque H. M., “Reduction of Axle Length of Rickshaw and its Implications”, *Proceedings of the 4th International Conference on Mechanical Engineering*, BUET, Dhaka 26-28 December, pp. 131-133, Vol. 3, Sec VII, December 2001.
- (20) Uttam K.C, Hossain A., Shahriar N., Ehsan Md., “Development of a Mechanism for Mixing Two Different Gases at Constant Proportion for Variable flow Rates”, *Proceedings of the 6th Annual paper Meet and International Conference*, Institute of Engineers, Bangladesh, paper no. 54, pp.437-447, 27-29 January, 2000.
- (21) Ehsan Md., Rampen W.H.S, “Prospects of Stirling Cycle Engines”, *Proceedings of the 2nd International Seminar on Renewable Energy for Poverty Alleviation*, ISREPA-99, Institute of Engineers, Bangladesh, pp.446-458, 26-27 Nov. 1999.

### **NATIONAL LEVEL PRESENTATIONS :**

- (1) Ehsan Md., “Use of CNG : Environmental and Economic Impact on Bangladesh”, a seminar organized by the Association of CNG Station and Workshop Owners, Bangladesh in Sept 2013. Dr. Md. Ehsan, Professor, Mechanical Engineering Dept. of BUET, presented his lecture as a part of the effort to emphasise the benefits of continuing the existing CNG program of Bangladesh to stake holders.
- (2) Ehsan Md., “Diesel Engines – Emissions and Controls”, a seminar organized by the Department of Environment (DOE), Government of Bangladesh in June 2011. Dr. Md. Ehsan, Professor, Mechanical Engineering Dept. of BUET, presented his lecture as a part of the National Consultation Workshop on Clean Fuels and Vehicles arranged by DOE, held in Dhaka and Chittagong.

- (3) Ehsan Md., “Natural Gas Technology in Automobiles”, a seminar organized by the Dept. of Mechanical Engineering was held in BUET in May 2009. Dr. Md. Ehsan, Professor, Mechanical Engineering Dept. of BUET presented his key note speech. Mr. Sumit Kumar Saha, Deputy General Manager, NAVANA, CNG Ltd. And the Vice Chancellor of BUET took part in the discussion following the presentation.
- (4) Ehsan Md., “Use of CNG in Internal combustion Engines”, Keynote paper, 10<sup>th</sup> ANGVA NGV School, Dhaka, Bangladesh-China Friend-Ship Conference Centre, 30 April 2008. An international seminar organised by Bangladesh Natural Gas Vehicles Association (BNGVA), in association with Asian Natural Gas Vehicles Association (ANGVA) Korea. The presentation focused on the recent developments of CNG technologies and emphasised on practice of CNG safety issues.
- (5) Ehsan Md., “Automotive Technology in the Future”, Key Presentation, IPDC Auto Expo 2008, Bangladesh-China Friend-Ship Conference Centre, 24-26 March 2008. Organised by Autoline Bangladesh Ltd. The presentation identified the potential new fields in which the trends of automotive research and development is likely to advance in near future.
- (6) Ehsan Md. “Use of Internal combustion engines: Case Studies”, Keynote paper, Seminar organised by the Chemical Engineering Division, The Institution of Engineers Bangladesh on 6 June 2006. The keynote paper described the experimental study of the use of CNG fuel in three types of internal combustion engines. Case-1 : A small portable power generator SI engine; Case-2 : Dual fuel operation of a diesel engine used for irrigation; Case-3 : Use of CNG in a typical automotive engine. The paper also presents the overview of the CNG technology used in SI and CI engines.
- (7) Ehsan Md. “Effectiveness of Catalytic Converter and Diesel Particulate Filters in Used Vehicles”, - Keynote presentation in a National level Discussion, Organised by Society for Urban Environmental Protection (SUEP), 3rd November 2002, National Press Club, Dhaka. The discussion was covered by the national news media, at a time when the government is making use of Catalytic Converters and Diesel Particulate Filters mandatory in used vehicles in Bangladesh. The presentation describes the Catalytic Converter and Diesel Particulate Filter Technology and limitation of its effectiveness in the used vehicles of Bangladesh.
- (8) Ehsan Md. “Emission from 2-Stroke Three-Wheelers and its Implication on the Environment”, - Keynote presentation in an National level Expert Discussion, Organised by ‘Parash’ a leading Environmental group of Bangladesh (BAPA), 27th January 2002, at BUET. The discussion was covered by the national news media. It played a role in preventing the government from changing its policy and legalizing the operation of 2-Stroke Three-Wheelers with the use of Catalytic Converters. The presentation describes the 2-stroke technology, operation of Catalytic Converters, and difficulties of its operation with two-stroke engines used in Bangladesh.

## **TECHNICAL REPORTS :**

- (1) A report on the Post Doctoral research activities in University of Edinburgh during the sabbatical leave of March-October 2005. This 109 page technical report mainly contains three chapters – (i) Simulation Software Evaluation (ii) Developing The DDPM Part-Stroke Models, (iii) Modelling of the Excavator Arm. This was submitted to BUET in 2006 as a part of the follow-up requirement of sabbatical leave.
  
- (2) Ehsan Md., Hossain Md. Imtiaz, “Study of The Role of Small Diesel Engines in Rural Bangladesh During The Flood of 1998” - Survey & Study Report, Bangladesh University of Engineering & Technology, 1999. A study based on the survey findings regarding the damage assessment and alternative use of Small Diesel Engines in Rural Bangladesh During The Flood of 1998.