# Curriculum Vitae

# MIMI HARYANI HASSIM, D.Sc. (Tech.)

Doctor of Science (Tech) in Chem. Eng. (Aalto University School of Science and Technology, Finland)
M.Sc. in Advanced Process Eng. (Loughborough University, United Kingdom)
B.Chem. Eng. (Universiti Teknologi Malaysia, Malaysia)


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|---|---|
| Position: | Senior Lecturer |
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## EDUCATION

**2005 - 2010** **Aalto University School of Science and Technology, Finland**
**Doctor of Science (Technology) in Chemical Engineering**
Thesis title: 'Inherent occupational health assessment in chemical process development and design'.

**2001 - 2002** **Loughborough University, United Kingdom**
**M.Sc. in Advanced Process Engineering**
Thesis title: 'Occupational health hazard assessment for new processes'.

**1997 - 2000** **Universiti Teknologi Malaysia**
**Bachelor in Chemical Engineering**
Thesis title: 'Modeling of argentum extraction from semiconductor wastes'.

## AWARDS & SCHOLARSHIPS

**2012** **Gold Medal in Malaysia Technology Expo 2012 (MTE 2012) for a project entitled A Novel Systematic Tool for Fugitive Emissions Mitigation Towards Sustainable Process Development**

**2012** **Gold Medal in Malaysia Technology Expo 2012 (MTE 2012) for a project entitled An Efficient Planning Tool for Integrated Electricity Generation Towards Sustainable Development**

**2012** **Silver Medal in Malaysia Technology Expo 2012 (MTE 2012) for a project entitled Palm Based Biosurfactant as New Green Stabilizer in Reverse Micelles System**

**2011** **Silver Medal in INATEX 2011 for a project entitled A Novel Systematic Tool for Fugitive Emissions Mitigation Towards Sustainable Process Development**

**2011** **Gold Medal in INATEX 2011 for a project entitled Palm Based Biosurfactant as New Green Stabilizer in Reverse Micelles System**

**2011** **Silver Medal in INATEX 2011 for a project entitled An Efficient Planning Tool for Integrated Electricity Generation Towards Sustainable Development**

**2011** **Best Paper Award in the 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, 2011, Dubrovnik**

**2008** **Best Oral Presenter in the MEC-UK 2008 Conference in London (1st Place)**

**2010** **Nominated to join the American Chemical Society**

**2010** **Acknowledged by the Malaysian Embassy of Finland as the first Malaysian student to receive a PhD from Finland**

**2009** **Distinction in doctoral courses for major (CPA: 4.86/5.00) and minor (CPA: 4.50/5.00) subjects**

**2009** **Selected to represent Chemical Engineering students of Finland in a Collaboration Workshop between Finland - China in Beijing**

**2009** **Selected as member of the IBC Top 100 Educators**

**2009 / 2010** **Biographical profile has been selected for inclusion in the 2000 Outstanding Intellectuals of the 21st Century**

**2008** **Who's Who in the World (26th Edition)**

**2005 - 2008** **Islamic Development Bank (IDB) Merit Scholarship**

**2005** **Excellent Annual Academic Staff Award, University Teknologi Malaysia**

**2004** **Best Participant in Teaching in English Course**

**2000** **Best Undergraduate Student in Chemical Engineering Department**
Convocation Day

**2000** **Medal Receiver for Dean's List Winner**

**1997 - 2000** **UTM Scholarship**
(1 student per faculty annually)

**1996-1997** **MARA Scholarship**

**1997-2000** **Dean's List (CPA over 3.50)**

**1995** **Best State Student (urban category)**

**1995-1996** **Principal' List (CPA over 3.50)**

**1994** **Achievement Certification by Pahang State Foundation**
(Lower Secondary Assessment)

**1991** **Achievement Certification by Pahang State Foundation**
(Primary School Assessment Test)

## KEY RESEARCH AREAS

### *(1) Inherent Occupational Health Assessment in Chemical Process Development and Design*

This is the main area of my research works. I have been involved in this area for more than 10 years. The aim of this research is to develop a series of methodologies for evaluating inherent health hazards during the development and design phase of chemical process industries. The goal is to protect workers health and well being, which are routinely exposed to various hazardous substances in their working environment. Many did not and still do not realize that each year more people die from diseases caused by work than are killed in industrial accidents. To enhance the 'healthiness' level of chemical processes, the methods are developed for the three early stages of a process lifecycle; research and development (R&D), preliminary design, and basic engineering. Basic engineering is the last step when modifications can still be made at a moderate cost and inherent safety features can be applied effectively. The overall plan of the research is to develop hazard and risk assessment method for each design stage that can be used independently. I am currently heading three research grant projects: One is sponsored by the Research University Grant program, worth RM 150 000, the second one is under the

Potential Academic Staff program, worth RM 20 000 and the most recent one worth RM 75 000 under flagship grant. Besides, I am also a team member of around five other research grant projects including with other university. A research grant (Vot 75144: Algorithm formulation of occupational health hazards index: RM15 000; 2004-2005 and Fund from Graduate School of Chemical Engineering: Assessment of inherent occupational health hazards in chemical processes: Euro18 000; 2006-2009) was awarded to conduct the research. Numerous international refereed journal articles also have been published based on the results of this study.

Keywords: inherent occupational health, hazard, risk assessment, process development, process design
**Other Researcher: Prof. Markku Hurme**

**(2)** ***Estimation of Occupational Exposures in Petrochemical Plants***

Each year more people die from diseases caused by work than are killed in industrial accidents. Therefore, methods are needed to evaluate occupational health hazards as early as possible when the process is still under development. A method for estimating inhalative exposures and risks in petrochemical and related plants is formulated in this study. The method is simple and suffices with the limited data availability during the early design stages. The worker risk of exposure to chemicals is evaluated either based on the concentration in air by using the hazard quotient method or the calculation of the carcinogenic chemicals intake and the resulting risk of cancer. The values are compared to the benchmarks. A research grant **(**Project no. 110013: Inherent occupational health assessment in chemical process development and design: Euro 9 000; Mac-Ogos 2010 from The Finnish Work Environment Fund) was awarded to conduct the research. An international refereed journal article and international refereed conference paper (in ESCAPE-19) have been published based on the results of this study.

Keywords : worker exposure, risk assessment, inherent safety, occupational health, process design
**Other Researcher: Prof. Markku Hurme**

**(3)** ***Computer Aided Design of Occupationally Healthier Processes***

Nowadays, tools and methods become more attractive if they are computer-based. Computer aided methods are clearly needed as most of design work is done by using CAPE tools now. Therefore, it is essential to analyze the feasibility of integrating the methods with existing computer aided design tools. Since the methods are for different design stages, the data requirements and integration needs are somewhat different. The data requirements are divided to three main sources: 1) health and safety data, 2) fugitive emission related data, and 3) process data. The proposed computer system is quite straightforward in the R&D and preliminary design stages. Basic engineering stage requires more complicated data and design software integration. An international refereed conference paper (in ESCAPE-18) has been published based on the results of this study.

Keywords: occupational health evaluation, CAPE, process development and design
**Other Researcher: Prof. Markku Hurme**

**(4)** ***Inherent SHE Considerations in Process Development***

A correlation between different methods for assessing different hazard elements of safety, health, and environment (SHE) is studied. A pair-wise comparison technique has been used to examine the quality of correlation, which is indicated by linear regression ($R^2$) value; the higher the value, the stronger the correlation. Forty eight pairs of methods across elements are compared in this research study. Safety and environmental methods demonstrate the strongest overall correlation due to the similar calculation background, development basis, and assessment duration of interest. An international refereed conference paper (in Chem. Eng. Trans.) has been published based on the results of this study.

Keywords: SHE, correlation analysis, pair-wise comparison, process development and design
**Other Researchers: Prof. Markku Hurme and Miina Gronlund, Yousef Abdulkarem Ali Alhmadani**

**(5)** ***Fugitive Emissions Assessment and Mitigation for Sustainable Process Development***

Fugitive emissions are a major concern not only to environment, but also economic, safety and health aspects. Even though the amount of fugitive emissions is very small and almost invisible to eyes, continuous emissions throughout the year (unlike stack emissions which are periodic) may amount to huge losses and cause adverse impacts to human and environment. Therefore it is very important to start assessing fugitive emissions earlier, when developing a new process or facility. The aim of this research is to develop new methods as well as computer based tools for estimating the amount of fugitive emissions for a proposed process. Early assessment allows appropriate counter measures to be taken earlier, at lower cost compared to the existing facility in which any process modifications will be much more costly and difficult. Many publications have been produced on this research topic, both in international journals and conference proceedings.

Keywords: fugitive emissions, estimation, predictive tool, process development and design
**Other Researchers: Prof. Markku Hurme, Johnathan Har Sean Hou**

**(6)** ***Multi Criteria Decision Making in Chemical Processes***

Many situations and problems in the chemical and related industries involve complex decision-making demanding discerning abilities and methods. Multiple criteria decision making (MCDM) tools and methods have been widely used to solve chemical engineering (CE) problems that involve conflicting and multiple objectives of diverse types. The main aims of this study are to (1) explain and compare the most common MCDM methods and (2) present and classify more than 300 published papers related to the application of MCDM in CE. The various MCDM publications are classified based on the application area, decision context, journal and year of publication, criteria included, and metrics used to measure the criteria to highlight the trends over the past three decades. An international refereed journal paper has been submitted based on the results of this study and now the paper is under correction based on the reviewers' comments.

Keywords: multi-criteria decision making, decision support system, multi-objective optimization, chemical engineering

**Other Researchers: Mohsen Pirdashti, Tavana Madjid, Majid Behzadian, and I. A. Karimi**

## WORK EXPERIENCE

**Jan 2011 – current**
**Senior Lecturer**
**Universiti Teknologi Malaysia (UTM)**

Description: As a senior lecturer in UTM, I am assigned a greater responsible in teaching, which is to teach postgraduate students. I also need to teach the undergraduates Process Control and Dynamics subject. I also supervise research students (PhD, Master, BSc) and involve with several consultant projects related to chemical engineering problems.

Subjects taught:

- Process Control and Dynamics
- Human Factor and Accident Investigation
- Inherent Occupational Health Assessment in Chemical Process Design
- Introduction to Engineering
- Harvard Business School Case Study

Supervised Projects:

Simple graphical method for inherent occupational health assessment
Occupational health risk assessment of chemical process concept
Inherently healthier design – Current status and future direction in Malaysia

- Computer aided assessment and design of occupationally healthier processes during research and development stage

Computer-aided design of occupationally healthier chemical processes
Inherent occupational health assessment for batch chemical processes

- Production of 100 kMT per annum of methyl methacrylate

**Feb 2003 – Dec 2010**
**Lecturer**
**Universiti Teknologi Malaysia (UTM)**

Description: As a lecturer in UTM, I taught undergraduate various courses for the undergraduate program. I involved with preparing paper work for a new Master program in our department and publishing experimental module for Process Control and Dynamics laboratory. I also was an adviser of students paper writing contest, funded by Shell Company.

Subjects taught:

- Process Control and Dynamics
- Computer-aided Design
- Process Instrumentation
- Oleochemical and Vegetable Oils

Supervised Projects:

- Development of process safety incident analysis with major chemical hazard system

- Production of 50 kMT per annum of acrylic acid
- Production of 50 kMT per annum of methyl methacrylate
- Production of 100 kMT per annum of chloroform
- Production of 50 kMT per annum of chloroform
- Process and Design of 6MW Power Plant
- Production of 100 kMT per annum of sodium bicarbonate

**Sep 2005 – June 2010**
**Research scientist**
**Aalto University School of Science and Technology**
Description: I did a lot of research works under the supervision of Professor in Plant Design laboratory. I represented Finland's chemical engineering postgraduate students for research collaboration workshop with China Academic of Science in Beijing. I headed two research grants in Finland. I also co-supervise a MSc student from Spain.

**May 2007 – Oct 2008**
**Process engineer/consultant**
**Borealis Polymers Oy, Finland**
Description: I was assigned as process engineer/consultant by Borealis Polymers Oy in Porvoo, Finland. The project involved the estimation of fugitive emissions rates and concentrations in their plant using methods we developed. The results were presented to the manager and engineers; they were very happy with the results. The company even uses the methods after the study.

**Sep 2000 – Jan 2003**
**Tutor**
**Universiti Teknologi Malaysia (UTM)**
Description: As a tutor in the Department of Chemical Engineering UTM, I taught several undergraduate laboratory courses. I also was an adviser of Chemical Engineering Students Society. We organized a lot of chemical engineering-related activities including plant visits, career talk, competitions. After a year serving as a tutor, I left for my MSc study.

Subjects taught:

- Laboratory of Unit Operation I
- Laboratory of Unit Operation II
- Laboratory of Reaction and Process Control

**May 1999 – July 1999**
**Process engineer trainee**
**W. R. Grace Chemicals Specialties**

Description: As process engineer trainee in the big company in Gebeng Industrial Park, I experienced a lot of hands-on works in different sections of the company including processing, quality assurance as well as research and development. I also learnt practical aspects about the process e.g. how the quality of raw materials affects product specification.

## PROFESSIONAL CONTRIBUTIONS & CONSULTATION

1) **Consultation on environmental impact assessment in Pasir Gudang, Johor (2011-ongoing).**
Our team has been approached by Pasir Gudang City Council to conduct study on environmental impact assessment in Pasir Gudang area. There are four major studies and one of them is on public health impact assessment, which will headed by me. We have already submitted a proposal for Term of Reference to the council, and the results will be announced soon.

**2) Consultation on converting industrial wastes in Tanjung Langsat landfill into steam and designing a centralized steam distribution facility in Tanjung Langsat (2011-ongoing).**
The work started eight months ago and the project is now at the final stage of preparing report of the study. The project is headed by Malakoff Corporation Berhad, but they hired us to be the consultants to carry out the project. Massive studies have been conducted on solid wastes characterization in Tanjung Langsat landfill, potential energy to be generated from the wastes incineration as well as steam demand by industries within this area.

3) **Consultation on fugitive emissions estimation project with Borealis Polymers Oy in Porvoo, Finland (2007 - 2008).**
Actively involved in evaluating the point of leaks in the plant and consequently estimating the fugitive emissions rate from the processing area. The results of the study were presented to the plant manager and process engineers of the company and received a very positive feedback from them regarding the reliability and applicability of the methods developed.

4) **Consultation on occupational safety and health assessment project with Zalco Metals Sdn. Bhd (2003).**
Actively involved in assessing the risk of occupational safety and health for the proposed project to expand the capacity of Zalco Metals Sdn. Bhd. Production and preparing the correspond report.

**4) Consultation on getting plant data for research and teaching (2003-2004 and 2010-2011).**
Visited several companies e.g. Felda Oil Products, SOCTEK Sdn. Bhd., Petronas Penapisan Melaka Sdn. Bhd., Cactus Mineral Water, Titan Petrochemicals, SNC Industrial Laminates Sdn. Bhd., and CCM Chemicals to discuss about consultation and collaboration.

**5) Invited as speaker in a workshop organized by the Institution of Engineers Malaysia (23 July 2011).**
The title of the workshop is 'How to Assess Inherent Occupational Health in Chemical Process Plant', which is the area of my expertise. The details of the workshop can be found in: http://www.myiem.org.my/events/default.aspx?p=&id=0&dt=07/23/2011

I also actively involved in more than 30 programs, mainly as key advisor and facilitator. Some of the programs are listed below.

**6) Academic advisor for staffs educational trip to Melbourne, Australia (20 to 27 June 2011).**
Organized by Faculty of Chemical Engineering, Universiti Teknologi Malaysia.

7) **Advisor for the Study Trip to Beijing, China (May 2005).**
Organized by Kolej Perdana, Universiti Teknologi Malaysia.

8) **Advisor for the Study and Cultural Trip to New Zealand (2003).**
Organized by Kolej Perdana, Universiti Teknologi Malaysia.

**9) Academic Advisor for Bachelor of Chemical Engineering, UTM (2003-2005).**
**10) MQA Committee (accreditation) for M.Sc. in SHE Program MKH (2010).**
**11) Invited as Judge of Sustainability Competition (2010).**
**12) Committee UTM CL-PBL Support Group (2004-2005).**
**13) Key advisor of National Chemical Engineering Symposium (NACES) (2003).**
**14) Secretariat of Post Graduate Promotional Program (2002-2005).**
15) **Leader of Excellent Graduate Unit FKKKSA (2003).**
16) **Advisor of Water Pollution Expo (WAPEX) (2004).**
17) **Key advisor of Shell Paper Contest (2004).**
18) **Committee of JKK External Collaboration Task Force (2004-2005).**
19) **Advisor of Chemical Engineering Student Chapter (2002-2005 & 2010-).**
20) **Invited as facilitator for NAICI Induction Course (2003).**
21) **Advisor of Postgraduate Society FKKKSA (2004-2005).**
22) **Committee of JKK Academic Quality Workshop (2003).**
23) **Chairman of Undergraduate Orientation Week Program (2003).**
24) **Committee of Postgraduates Summer Camp (2003).**
25) **Preparing proposal for M.Sc. in Safety, Health, and Environmental new (2003-2005).**
26) **Advisor of Matriculation Students Activity (2003).**
27) **Committee of Leadership Training Course (2003).**
28) **Key advisor of Research, Documentation, and Publication Bureau (2003-2005).**

## SOCIAL CONTRIBUTION

**1) Leading an official visit of non-academic staff to RMIT and University of Melbourne, Australia (2011).**
**2) Advisor for UTM's Chemical Engineering Student Society (2010-2012).**
3) **Advisor to Chemical Engineering Finnish Students (TKK) Trip to Malaysia and Singapore (2008).**
4) **President Finland-Malaysia Students Chapter (2007-2008).**
5) **Student representative of Malaysian students in Finland in Scandinavia students' society (2007-2010).**
6) **President of Welfare Body Kolej Perdana (2003-2005).**
7) **Committee of Farewell Ceremony for PM Samin (2003).**
8) **Director of Family Day, Welfare Body Kolej Perdana (2004-2005).**
9) **Advisor to Hari Raya Qurban Celebration (2004).**
10) **Committee Member, Teamwork Motivational Workshop (2004).**
11) **Director of Farewell Ceremony, Staff Welfare Body (2004-2005).**
12) **Assistant Director of Landscape Program, Kolej Perdana (2004)-2005).**
13) **Advisor to Graduating Chemical Engineering Students Night (2004).**
14) **Advisor to Bureau of Harmony and Unity, Kolej Perdana (2004-2005).**
15) **Fellow Kolej Perdana, UTM (2003-2005).**

16) **Assistant Fellow Kolej 5, UTM (2000-2001).**

## RESEARCH SKILLS

***Health assessment methodology development:***

Methodologies are developed for 1) R&D stage, 2) preliminary design stage, 3) detailed design stage.

Validation: the results are tested on several case studies including existing plant.

Computerization: the feasibility of adapting the methodologies to the existing computer aided design software is studied successfully.

***Inherent safety and environmental friendliness:***

Besides health, I am also very familiar and able to conduct researches related to inherent safety and inherent environmental friendliness aspects.

Correlation: the correlation between these three aspects is studied successfully using a reliable statistical method.

***Software:***

Skilled in Microsoft Office software (Words, Excel, PowerPoint). Pro-II process simulation software. Microsoft Visio. Statistical programming e.g. using Weibull distribution.

## REVIEWER

Appointed as a reviewer for several international journals including the well-known journal for process safety – Journal of Process Safety and Loss Prevention.

Invited as reviewer of the International Scientific Committee of CISAP5 Conference for Chemical Engineering Transactions Vol. 26 , Italy.

Appointed as editorial board member of PERINTIS Journal.

Appointed as a reviewer for national journal.

3) Appointed as a reviewer/evaluator for postgraduate students application for the Islamic Development Bank scholarship (applications from all around the world).
4) Appointed as a reviewer for research grant applications in Universiti Teknologi Malaysia.

## PERSONALS

**Interests:**

Jogging. Reading. Traveling. Photographing.

## REFERENCES

**Assoc. Prof. Dr. Mohd. Ghazali Mohd. Nawawi**
**Head**
**Department of Chemical Engineering**
**Universiti Teknologi Malaysia**
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**Tel: +60 7 5535512**

**Professor Markku Hurme**
**Head**
**Plant Design Research Unit**
**Aalto University**
**PO. Box 6100, FIN-02015**
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**E-mail : ghazali@cheme.utm.my**

## PUBLICATIONS

**Books**

1. Mohd. Kamaruddin Abd. Hamid, Khairiyah Mohd. Yusof and Mimi Haryani Hassim, Laboratory manual - Process Control Laboratory, Process Control and Safety Group, Department of Chemical Engineering, Universiti Teknologi Malaysia (2003).

2. Mimi Haryani Hassim, Membrane applications in fruit juice processing, Technical Report, Lappeenranta University, Finland (2006).

3. Hassim M. H. and Haslenda H., Estimation of air flow rate for occupational health risk assessment of chemical plants, Book Chapter, Universiti Teknologi Malaysia (corrected after review).

4. Joseph G.K.K., Haslenda H. and Hassim M.H., Techno-economic study of trigeneration system of pharmaceutical plant, Book Chapter, Universiti Teknologi Malaysia (corrected after review).

**Refereed International Journal Papers**

1. Hassim, M.H., Edwards, D.W., Development of a methodology for assessing inherent occupational health hazards, Proc. Safety Environ. Protect., 84(B5) (2006) 378-390.

2. Hassim, M.H., Hurme, M., Inherent occupational health assessment during process research and development stage. J. Loss Prev. Proc. Ind. 23(1) (2010) 127-138.

3. Hassim, M.H., Hurme, M., Inherent occupational health assessment during preliminary design stage. J. Loss Prev. Proc. Ind. 23(3) (2010) 476-482.

4. Hassim, M.H., Hurme, M., Inherent occupational health assessment during basic engineering stage. J. Loss Prev. Proc. Ind. 23(2) (2010) 260-268.

5. Hassim, M.H., Pérez, A.L., Hurme, M., Estimation of chemical concentration due to fugitive emissions during chemical process design. Proc. Safety Environ. Protect. 88(3) (2010) 173-184.

6. Hassim, M.H., Hurme, M., Occupational chemical exposure and risk estimation in process development and design. Proc. Safety Environ. Protect. 88(4) (2010) 225-235.

7. Pirdashti, M., Tavana, M., Hassim, M.H., Behzadian, M., Karimi, I.A., A taxonomy and review of the multiple criteria decision making literature in chemical engineering, International Journal of Multicriteria Decision Making, 1(4) (2011) 407-467.

8. Pirdashti, M., Omidi, M., Pirdashti, H., Hassim, M.H., An AHP-delphi multi-criteria decision making model with application to environmental decision-making, Iranian J. Chem. Eng. 8(2) (2011) 3-17.

9. Hassim, M.H., Ali, M.W., Screening alternative chemical routes based on inherent chemical process properties data: Methyl methacrylate case study, J. Instit. Eng. Malaysia 70(4) (2009) 2-10.

10. Hassim, M.H., Hurme, M., Introduction to occupational inherent health concept from chemical process perspective, J. Instit. Eng. Malaysia 71(3) (2010) 56-64.

11. M.H. Hassim, M. Hurme, N.N.N.A. Aziz , 2012, Computer Aided Estimation of Fugitive Emission Rates and Occupational Air Concentration in Process Design Computer Aided Chemical Engineering, 30, 76-80.

12. Johari, A., Hashim, H., Mat, R., Alias, H., Hassim, M.H. and Rozainee, M., Generalization, Formulation and Heat Contents of Simulated Municipal Solid Waste with High Moisture Content, Journal of Engineering Science and Technology, Accepted for publication.

13. Ahmad, S. I., Haslenda, H., Hassim, M.H., A review on process simulation for emission reduction in power plant, Energy Procedia (2011), accepted.

14. A-Jalil, S., Hashim, H, Hassim, M. H., Sapiaa, N. A. H., Fugitive emission reduction by replacing valve using GAMS solver, Energy Procedia (2011), accepted.

15. Hassim, M. H., Hanafi, N. H., Inherently healthier design – Current status and future direction in Malaysia, Energy Procedia (2011), accepted.

16. Ho, W. S., Shamsuddin, N. L. M., Hashim, H., Muis, Z. A., Hassim, M. H., Design of Distributed Energy System through Electric System Cascade Analysis (ESCA), Applied Energy (2012), In press.

17. A. Johari, H. Hashim, M. Ramli, H. Alias, M. H. Hassim and M. Rozainee (2012), Combustion Characteristics of Refuse Derived Fuel (RDF) in a Fluidized Bed Combustor, Fuel Processing Technology, Submitted.

18. A. Johari, H. Hashim, M. Ramli, M. Jusoh M. H. Hassim and M. Rozainee (2012), A Short Note: Municipal Solid Waste Combustion in a Pilot Scale Fluidised Bed Combustor, Applied Thermal Engineering Journal, Submitted.

**National Journal Papers**

1. Hassim, M.H., Kidam, K., Ali, M.W., Estimating air volumetric flow rate of outdoor chemical plants for occupational health hazards assessment, J. Chem. Nat. Res. Eng. 2(Special Edition) (2008) 28-39.

2. Kidam, K., Hassim, M.H., Ali, M.W., Kamarrudin, N., 2008, Enhancement of inherent safety and accident prevention in chemical industry by reviewing past accidents, J. Chem. Nat. Res. Eng. 2(Special Edition) (2008) 75-86.

3. Kamarrudin, N., Ali, M.W., Kamsah, M. Z., Hassim, M.H., Kidam, K., Computer-based safety training for semiconductor industry, Jurnal Teknologi 51(F) (2009) 131-141.

4. Mimi Haryani Hassim, Assessing inherent health hazard for proposed plants, Jurnal Teknologi 39(F) (2003) 53-65.

**International Conference Papers (Refereed - International Reviewer Committee)**

1. Hassim, M.H., Edwards, D.W., Hurme, M., Assessing the inherent occupational health hazards during the conceptual design phase, Chem. Eng. Trans. 9 (2006) 119-124.

2. Cziner, K., Hassim, M.H., Hurme, M., Lifecycle assessment of process concepts, Chem. Eng. Trans. 9 (2006) 293-298.

3. Cziner, K., Hassim, M.H., Hurme, M., Multicriteria design of separation sequences by including HSE criteria and uncertainty, Comp. Aided Chem. Eng. 21 (2006) 1149-1154 (available in www.sciencedirect.com).

4. Hassim, M.H., Hurme, M., Computer aided design of occupationally healthier processes, Comp. Aided Chem. Eng. 25 (2008) 1119-1124 (available in www.sciencedirect.com).

5. Hassim, M.H., Grönlund, M., Hurme, M., Inherent EHS considerations in process development, Chem. Eng. Trans. 13 (2008) 295-302.

6. Kidam, K., Hassim, M.H., Hurme, M., Enhancement of inherent safety in chemical industry, Chem. Eng. Trans. 13 (2008) 287-294.

7. Hassim, M.H., Hurme, M., Computer aided chemical exposure estimation in process design, Comp. Aided Chem. Eng. 26 (2009) 1141-1145 (available in www.sciencedirect.com).

8. Hassim, M.H., Hurme, M., Kidam, K., Inherent health consideration for workers' protection in chemical plants, Chem. Eng. Trans. 19 (2010) 353-358.

9. Kidam, K., Hurme, M., Hassim, M.H., 2010, Technical analysis of accident in chemical process industry and lessons learnt, Chem. Eng. Trans. 19 (2010) 451-456.

10. Hassim, M.H., Hurme, M., Estimation of exposure concentration during the design stage of chemical processes, United Kingdom-Malaysia Engineering Conference 2008, London, UK, 1 (14-15 July 2008) 124-126.

11. Hassim, M.H., Hurme, M., Occupational health consideration in chemical process design, ChemEng08 (IChemE's Global Meeting), Birmingham, UK (28-30 October 2008).

12. Hassim, M.H., Hurme, M., Quantification of fugitive emissions for proposed chemical plants, AIChE 100th Annual Meeting, Philadelphia, USA (16-21 November 2008).

13. Kidam, K., Hassim, M.H., Hurme, M., Accident prevention: Practicing inherent safety, 15th Regional Symposium on Chemical Engineering (RSCE), Kuala Lumpur (2-3 December 2008).

14. Hassim, M.H., Hurme, M., Kidam, K., Occupational acute toxic hazard evaluation and prevention during process development stage, 13th International Symposium on Loss Prevention and Safety Promotion in the Process Industries, Brugge, Belgium, 1 (6-9 June 2010) 279-286.

15. Kidam, K., Hurme, M., Hassim, M.H., Inherent safety based corrective actions in accident prevention, 13th International Symposium on Loss Prevention and Safety Promotion in the Process Industries, Brugge, Belgium, 2 (6-9 June 2010) 447-450.

16. Hassim, M.H., Hurme, M., Prevention of fugitive emissions in chemical processes based on inherent safety principles, The 13th Asia Pacific Confederation of Chemical Engineering Congress (APCChE 2010), Taipei, Taiwan (5-8 October 2010) 1-6. Impact factor: 0.5 something

17. Hassim, M.H., Hurme, M., Assessing inherent occupational health aspect during chemical process design, 2011 The World Congress on Engineering and Technology (CET 2011), Shanghai, China (28-30 October 2011) 1-4.

18. Hassim, M.H., Hanafi N.H. Inherently healthier design – Current status and future direction in Malaysia, Hazards Asia Pacific Symposium, Kuala Lumpur, Malaysia (27-29 September 2011) 1-4.

19. Aziz, N.N.A, Hassim, M.H., Rahim, F.L.M., Muis, Z.A., Simple graphical method for inherent occupational health assessment, International Conference of Chemical Engineering and Industrial biotechnology 2011 (SOMChE-ICCEIB 2011), Kuantan, Malaysia (28 November – 1 December 2011) 1-6.

20. Jalil, S.A, Hashim, H., Hassim, M.H., Koo W.T., Lui, T.S., Sapiaa N.A.H., Systematic technique for fugitive emission reduction in industry, The 3rd CUTSE International Conference, Miri, Malaysia (8-9 November 2011) 1-5.

21. Ahmad, S.I., Hashim, H., Hassim, M.H., Johari, A., Design of sustainability index during process design stage, The 3rd CUTSE International Conference, Miri, Sarawak (8-9 November 2011), 1-4.

22. Hassim M.H., Abbaszadeh S., Hurme M., Kamsaini, R., Computer aided assessment of inherent occupational health hazards during research and development stage, 5th International Conference on Safety & Environment in Process Industry (full paper accepted).

23. Kasmani R.M., Andrews G.E., Phylaktou H.N., Hassim M.H., Experimental vented explosion in cylindrical vessel for hydrocarbon/air mixtures: Fast turbulent flames and high overpressures in the vent duct, 5th International Conference on Safety & Environment in Process Industry (full paper accepted).

24. Hassim, M.H., Pandian, S., Hurme, M., Computer aided assessment of occupationally healthier processes during research and development stage, 11th International Symposium on Process Systems Engineering (PSE 2012), Singapore (full paper accepted).

25. Jalil, S.A., Hashim, H., Hassim, M.H., Johari, A., Systematic technique for fugitive emissions reduction in chemical process industry, 11th International Symposium on Process Systems Engineering (PSE 2012), Singapore (full paper accepted).

26. Ahmad, S.I., Hashim, H., Hassim, M.H., Process simulation for emission reduction, 11th International Symposium on Process Systems Engineering (PSE 2012), Singapore (abstract accepted).

27. Ahmad, S. I., Haslenda, H., Hassim, M.H., Sustainability Assessment of Chemical Routes for Fertilizer Production, International Conference on Civil and Environmental Engineering for Sustainability, 3-5 April 2012, Johor Bahru, Malaysia.

28. Hon Loong Lam, Dominic C.Y Foo, Denny K. S. Ng, Mimi H. Hassim, Mustafar Kamal, Integration of Industrial Waste Oil, Biomass and Municipal Wastes into Malaysian Urban Area Energy Supply Chain, 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems (September 2011), Dubrovnik.

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**International Conference Papers (Local Reviewer Committee)**

1. Mimi Haryani Hassim, Occupational health hazard assessment for new processes, 4th Internat. Conf. Disaster Mangmt., Langkawi (2003).

**International Journal Papers (Submitted for Correction and Editing)**

19. Hon Loong Lam, Dominic C.Y Foo, Denny K. S. Ng, Mimi H. Hassim, Mustafar Kamal, Integration of Industrial Waste Oil, Biomass and Municipal Wastes into Malaysian Urban Area Energy Supply Chain, Invited as full paper in the Special Edition of Applied Energy (full paper will be submitted).

20. Hassim, M.H., Hurme, M., Amyotte, P., Khan, F. I., Fugitive emissions in chemical processes: The assessment and prevention based on inherent safety approach, Journal of Loss Prevention in the Process Industries, Full paper accepted (no correction).

21. Hassim, M.H., Hurme, M., Comparison of methods for assessing occupational health hazards in chemical process development and design phases, Manuscript will be submitted.

22. Tavana, M., Pirdashti, M., Kennedy, D.T., Hassim, M.H., A hybrid delphi-SWOT paradigm for oil and gas pipeline planning in Capsian Sea Basin, Manuscript needs to be reviewed.

**International and National Conference Papers**

1. Khairiyah Mohd. Yusof, Mimi Haryani Hassim and Azila NMA, A first attempt at problem based learning in process dynamics and control course for chemical engineering undergraduates at Universiti Teknologi Malaysia, The 5th Asia-Pacific Conf. Problem-Based Learning: Pursuit of Excellence in Education, Petaling Jaya (2004).

2. Khairiyah Mohd. Yusof and Mimi Haryani Hassim, Cooperative learning and problem-based learning: Are they effective for Malaysian chemical engineering undergraduates? Symp. Malaysian Chem. Eng., University Teknologi Petronas (2004).

3. Khairiyah Mohd. Yusof and Mimi Haryani Hassim, Cooperative learning in process dynamics and control course for undergraduate chemical engineering students, The Seventh Triennial AEESEAP (Ass. Eng. Edu. Southeast & East Asia & the Pacific) Conf., Universiti Malaya (2003).

4. Mimi Haryani Hassim, Mohd. Kamaruddin Abd. Hamid, Mohd. Ariffin Abu Hassan, Khairiyah Mohd Yusof, Syed Ahmad Helmi Syed Hassan, Mazlina Esa, Enhancing learning through cooperative learning: UTM experience, Conf. Eng. Edu. 2004, Kuala Lumpur (2004).

5. Khairiyah Mohd. Yusof, Azila Abdul Aziz, Mohd. Kamaruddin Abd. Hamid, Mohd. Ariffin Abu Hassan, Mimi Haryani Hassim, Syed Ahmad Helmi Syed Hassan, Azila NMA, Problem based learning in engineering education: A viable alternative for shaping graduates for the 21st century?, Conf. Eng. Edu. 2004, Kuala Lumpur (2004).

6. Mohd. Kamaruddin Abd. Hamid, Mohd. Ariffin Abu Hassan, Mimi Haryani Hassim, Khairiyah Mohd Yusof, Implementation of problem based learning in a typical engineering classroom, Conf. Eng. Edu. 2004, Kuala Lumpur (2004).

7. Mohd. Ariffin Abu Hassan, Khairiyah Mohd Yusof, Mohd. Kamaruddin Abd. Hamid, Mimi Haryani Hassim, Azila Abdul Aziz , Syed Ahmad Helmi Syed Hassan, A review and survey of problem based learning application in engineering education, Conf. Eng. Edu. 2004, Kuala Lumpur (2004).

8. Khairiyah Mohd Yusof and Mimi Haryani Hassim, Implementation and outcome of cooperative learning and problem based learning in a large engineering classroom, Edu. Res. Assoc. of Singapore, Singapore (2004).