



## Dr. Noraini Mohd Razali

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Faculty of Manufacturing Engineering  
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### Academic Qualifications

Ph.D. in Manufacturing Systems Engineering, Dublin City University, Ireland  
M.Eng. in Manufacturing Systems Engineering, UKM Bangi  
B.Eng. (Hons) in Mechanical Engineering, University of Strathclyde, UK  
Diploma in Mechanical Engineering, Universiti Teknologi Malaysia, UTM Skudai

### Brief Profile

Dr. Noraini is a senior lecturer and researcher at Faculty of Manufacturing Engineering, Universiti Malaysia Pahang (UMP). She received her Ph.D. in manufacturing systems engineering from Dublin City University, Ireland. Prior to join UMP, she was an engineer at several multinational companies with total experiences of more than 9 years. Her current research focuses modeling and optimization of manufacturing systems utilizing evolutionary algorithms and other heuristic techniques.

### Research Area / Research Interest

Manufacturing Systems, Industrial Engineering and Operational Research

### List of Conferences / Publications

- Muthanna, Noraini, Simulation study of multiple case in assembly line balancing of automotive component, Institute of Physics
- N. M. Razali, Process Sequencing Modeled as TSP with Precedence Constraints – A Genetic Algorithm Approach, Applied Mechanics and Materials Vol. 575 (2014) pp 843-847
- Iskandar, Ismed; Razali, Noraini Mohd, Multi-mode Failure Models for Attribute Test Data in Reliability Systems, a Bayesian Analysis Approach Using Multi-nomial Distribution Model, Advanced Materials Research;2014, Issue 903, p419
- N. M. Razali and J. Geraghty, Genetic Algorithm to Solve Process Sequencing Modelled as the Traveling Salesman Problem with Precedence Constraints, Proceedings of International Conference on Engineering and Information Technology "ICEIT2012", Sep. 17-18, 2012, Toronto, Canada, ISBN: 978-1-77136-064-7
- N. M. Razali and J. Geraghty, Biologically inspired genetic algorithm to minimize idle time of the assembly line balancing, Third World Congress on Nature and Biologically Inspired Computing (NaBIC2011), 19 – 21 Oct 2011, Salamanca University, Spain. Conference proceedings, pp 105-110, 2011

- N. M. Razali and J. Geraghty, Genetic Algorithm Performance with Different Selection Strategies in Solving TSP, The 2011 International Conference of Computational Intelligence and Intelligent Systems (ICCIIS11), 6 – 8 July 2011, London, United Kingdom. Conference proceedings, volume 2, pp 1134-1139, 2011

## List of Research / Project

- FRGS/RDU160133 – A New Forecasting Algorithms for Performance Measurement In Manufacturing Industries (August 2016 – July 2019)
- RAGS/RDU150120 – Performance Of Assessment Model For In Situ Design Concept Evaluation Using Integrated Rough-Grey Analysis (November 2015 – November 2018)
- FRGS/RDU160308 – Systematic Sustainability Assessment (SSA) for the Conceptual Design Phase in Malaysia Automotive Industry (April 2016 – April 2018)
- RDU 140392 – Simulation and Evaluation of Assembly Line Balancing in Perodua Manufacturing Plant (15 August 2014 – 14 August 2016)
- RDU 140362 – An improved Decision Support Tool for Dynamics Job Shop Scheduling (15 May 2014 – 14 May 2016)
- FRGS/RDU 130128 – Single Minute Exchange Die (SMED) Model for Set-up Time Reduction in Automotive Sector Manufacturing Process (1 December 2013 – 30 November 2015)
- RDU 130352 – An Investigation into Proactive Ergonomics Measures Barriers at Early Product Development Phases in Malaysian Automotive Industries (25 June 2013 – 24 June 2015)
- RDU 130350 – Fabrication and Properties of Functionally Graded Materials (FGMs) (25 June 2013 – 24 June 2015)
- RDU130341 – Multi-mode Failures Modelling in Reliability Engineering Systems with Bayesian Analysis Approach (15 June 2013 – 14 June 2015)
- RDU 120385 – Multi-Objective Genetic Algorithm for Flow Shop Scheduling Problem (1 October 2012 – 30 September 2014)
- RDU 120397 – The Impact of Lean Kitting Supply System on Reducing Non-value Added Activities in the Motorcycles Engine Assembly Process (1 October 2012 – 30 September 2014)

## Industrial Experiences

Industrial Attachment at Vacuumschmelze (M) Sdn. Bhd., Pekan, Pahang

Attached with Quality & Safety Engineering Department

- Exposed on Failure Analysis, Quality Management System, Quality Assurance, Training & Innovation, In-process quality control

Process & Equipment Engineer at Phillips Semiconductors Seremban (M) Sdn. Bhd.

- Monitor performance, quality & reliability of products, processes & equipment, identify problem or unfavorable deviations, recommend & execute corrective actions for the Mid-End area, which comprise of Molding and Plating process.
- Analyze processes, material, product, tooling and equipment. Makes recommendation and execute solutions to significantly improve efficiency, utility, quality, reliability and to reduce cost.
- Lead and execute engineering projects.

- Lot disposition and product defect analysis through utilization of low and high power scope, scanning electron micrograph (SEM), EDAX and an X-Ray machine.
- Responses to the customer return and prepare 8D report.
- Provide technical support to R&D team on new product introduction.
- Documents update and changes (positrol log, control plan, FMEA, SOJT, SPC checklist, etc).
- Liaise with vendor and supplier for the improvement and modification of the equipment.
- Educate production personnel on the new and updated process flow and process parameter.

#### Total Productive Maintenance Engineer at Phillips Semiconductors Seremban (M) Sdn. Bhd.

- Provide training to all employees through small group activity (SGA) on the basic principle of TPM and 5S, the benefits and how this new culture can be adopted to create better working environment.
- Introduce new system and formulate reward and recognition plan, which can improve TPM implementation activity.
- Set up auditor team and prepare standard audit procedure.
- TPM auditor to audit all SGA activities performance according to step standard requirements.
- Coordinate to fan out any improvement made by TPM team.
- Develop and upgrade employees through coordinating Technical workshop training such as bolt & nut, Soldering & De-soldering, Measurement instrument, Sensors, Electrical & Electronics, Pneumatics and Hydraulics.

#### Development Engineer at Samsung Corning (M) Sdn. Bhd.

- Perform system characterization and optimization plant wide by applying Design of Experiment, Design for manufacturability, Failure Mode and Effect Analysis, and Total Control Methodology to,
  - Minimize machine downtime (MTBF, MTTR, MTBA, MTTA)
  - Improve productivity and quality through mechanization
  - Reduce energy consumption (gas, water, electricity)
- Work out new improved automated concept using DFM & FMEA methodology.
- Conduct Cpk improvement program plant wide to meet 6 Sigma quality level.
- Conduct various Statistical methods education to upgrade knowledge for Samsung technical personnel such as 6 Sigma process control, Gage repeatability & reproducibility study, SPC, 7 QC tools, Process capability indices.

### Courses Taught

- Undergraduate Course – CAE & Failure analysis, Measurement & Instrumentation Systems, Engineering Materials, Mechanics Lab, Statics, Manufacturing Processes, Industrial Engineering, Total Quality Management, Production Planning & Control, Cleanroom Technology, Factory Management, Lean Production System
- Industrial Engineering Master (coursework) – Advanced Operations Research, Advanced Production Planning & Control
- Silterra (M) Sdn. Bhd. Training – Introduction to Manufacturing Operations, Production Planning & Control

### Postgraduate Supervision

- A new laser thickness measurement system for moving thin strip alloy – Ph.D. Thesis Title (main SV)
- Developing an effective framework for implementing TQM in Libyan cement company – Ph.D. Thesis Title (main SV)

- Simulation study of assembly line balancing in automotive components manufacturing – Master Thesis Title (main SV)
- Performance of assessment framework for design concept evaluation – Master Thesis Title (Co-SV)

### **Professional Membership / Committee Members**

- Graduate Engineer, Board of Engineer, Malaysia (BEM)
- Chairman for the International Manufacturing Engineering Conference (IMEC2013)
- Advisor for International Manufacturing Engineering (IMEC2015)
- Technical committee for International Conference on Mechanical, Industrial and Manufacturing Technologist (MIMT 2014 & MIMT 2015)

### **Awards & Recognition**

- Anugerah Pekerja Cemerlang (APC) 2012