



Ts Dr. Mas Ayu Binti Haji Hassan

Professional Technologists

Senior Lecturer

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Academic Qualification

1. PhD in Mechanical Engineering, Universiti Teknologi Malaysia (UTM), 2015.
2. M. Eng. Mechanical Engineering - Advanced Manufacturing Technology, (UTM), 2007.
3. B. Eng. (Hons) Mechanical Engineering, Universiti Teknologi Tun Hussein Onn Malaysia (UTHM), 2005.

Brief Profile

Ts Dr Mas Ayu Binti Haji Hassan @ H. Mas Ayu is a senior lecturer and active researcher at Manufacturing Focus Group, Faculty of Mechanical Engineering, Universiti Malaysia Pahang (UMP). She graduated from Universiti Teknologi Tun Hussein Onn (UTHM) which is formerly known as Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO) in Degree of Bachelor of Mechanical Engineering in 2005. After she has completed her first degree, she continues her studies at Universiti Teknologi Malaysia (UTM) about 1 and the half years in Master of Engineering (Mechanical Engineering - Advanced Manufacturing Technology) in 2006. Her highest achievement in her studies is Doctor of Philosophy (PhD) in Mechanical Engineering, focusing on Biomaterials Engineering graduated from Universiti Teknologi Malaysia (UTM). She has shown vast interest in Materials Engineering, Biomaterials, Surface Coatings, Advanced Machining and Manufacturing research area. At present, she involved in many research grants such as Ministry of Science and Technology research grant (MOSTI), Research and Development University grant (RDU), Research Acculturation Grant Scheme (RAGS) and Fundamental Research Grant Projects (FRGS). She also has actively published papers and journals in national and international conferences indexed by ISI/SCOPUS since 2009 until now. Her list of publication can be reviewed in SCOPUS and Google Scholar. She is Professional Technologists of Malaysia Board of Technologists (MBOT), Professional Member of Institute of Material Malaysia (IMM), member of Board of Engineers Malaysia (BEM), member of The Institution of Engineers Malaysia (IEM), member of Persatuan Staf Akademik Universiti Malaysia Pahang (PAKAD) and member of The International Association of Engineers (IAENG).

Working Experiences / Appointment

1. November 2006 ~ to date Senior Lecturer, Faculty of Mechanical Engineering (FKM), Universiti Malaysia Pahang.
2. 2 January – 31 Dec 2018 Coordinator Publication for Faculty of Mechanical Engineering, UMP
2. 9 January – 31 Dec 2017 Coordinator 5S for Faculty of Mechanical Engineering, UMP
3. 9 January – 31 Dec 2017 Academic Committee of Faculty, UMP.
4. 2 January – 31 Dec 2016 Secretary for Manufacturing Focus Group, FKM, UMP.
5. 9 April 2009~ 8 April 2010 Coordinator Industrial Training for Diploma Program, FKM, UMP.
6. 1 Feb 2009 ~ 31 Jan 2010 Technical Committee of Faculty of Mechanical Engineering, UMP.
7. 10 April 2008 ~ 9 April 2009 EAC Task-Force Committee
8. Jun 2007 ~ 2010 Academic Committee of Faculty, UMP.
9. Jun 2007 ~ 2010 Examination Committee of Faculty, UMP.
10. Nov 2003 ~ Apr 2004 Industrial Training, Compound and Resins Plant, Industrial Resins Malaysia Berhad, Johor.
11. Dis 1999 ~ Jun 2000 Quality Control (QC) – Pioneer & Warnes Electronics Sdn. Bhd., Kemaman, Terengganu.

Expert Area

Biomaterials, Surface Modification, Biocompatibility, Thin Film Coating, Materials Engineering, Advanced Machining and Manufacturing Technology.

Research Interest

Biomaterials, Biocomposites Coating (eg: Hydroxyapatite), Surface Technology, Advanced Machining (eg: WEDM, EDM), Manufacturing Technology, Materials Engineering, Parameters Optimization (eg: Taguchi, DOE, ANOVA) and Product Design and Development.

Research Project / Grant

1. "Deposition of Hydroxyapatite Coating on Oxide Interlayer via Sol-gel Method on Ti-Mo-Zr-Nb Alloy for Biomedical Applications" as a Researcher, collaboration with Universiti Pendidikan Sultan Idris (UPSI), External Grant (RCRP) amount: RM29,619.80, RDU17004310461 awarded by Universiti Pendidikan Sultan Idris (Status: Approved, on-going)
2. "Development of a Lightweight Front Lower Control Arm using Polyetheretherketone (PEEK)" as a Researcher, Internal Grant (RDU) amount: RM29,000.00, RDU1703311 awarded by Universiti Malaysia Pahang (Status: Approved, on-going).
3. "Effects of biodegradable PLA on hydroxyapatite coating to improve adhesion properties on Co-Cr-Mo alloy" as a Project Leader, Internal Grant (RDU) amount: RM34,500.00, RDU1703319 awarded by Universiti Malaysia Pahang (Status: Approved, on-going).
4. "Investigation on Initial Peak Force and Energy Absorption of High strength Steel Crash Box Having Notch as Initial Mechanism" as a Researcher, External Grant (FRGS) amount: RM99,440.00, RDU160140 (Status: Approved, on-going).
5. "Synthesis and Characterization of Thermal Oxidation Behaviour of Ti-Mo-Zr-Nb Alloy for Improvement of Biomedical Implant" as a Researcher, External Grant (FRGS) amount: RM79,600.00, RDU16006710402 (Status: Approved, on-going).
6. "Integration of Fine Particles in Laser Modified Tool Steel Surface for Thermal Stability of Grain Boundary" as a Researcher, External Grant (FRGS) amount: RM112,800.00, RDU160141 (Status: Approved, on-going).
7. "Surface Integrity of Al-Si/AlN MMC in End Milling Machining Process under Dry Cutting Condition" as a Researcher, Internal Grant (RDU) amount: RM33,000.00, RDU1603114 awarded by Universiti Malaysia Pahang (Status: Approved, on-going).
8. "Effect of fibre laser parameters onto solder alloy joining properties" as a Researcher, Internal Grant (RDU) amount: RM33,500.00, RDU160348 awarded by Universiti Malaysia Pahang (Status: Approved, on-going).
9. "Hydroxyapatite coating with oxide interlayer on biomedical grade cobalt based alloy" as a Project Leader, Internal Grant (RDU) amount: RM32,000.00, RDU 1403118 awarded by Universiti Malaysia Pahang (Status: Completed).
10. "Hydroxyapatite coating on laser melted-CoCrMo compact using various thicknesses of oxide interlayers for Biomedical Applications" as Researcher, External Grant (FRGS) amount: RM61,950.00, RDU151404 (Status: Completed).
11. "Development of a new approach to provide ankle morphometrics measurements for Total Ankle Arthroplasty (TAA) design" as a Researcher, Internal Grant (RDU) amount: RM23,000.00, RDU1403111 awarded by Universiti Malaysia Pahang (Status: Completed).
12. "Optimization of Grinding Wheel Parameters with Intelligent Techniques" as a Researcher, Internal Grant (RDU) amount: RM 40,000.00, RDU090374, (Status: Completed).
13. "Wire Electrical Discharge of Low Conductive Materials" as a Researcher, Internal Grant (RDU) amount: RM15,000.00, RDU080326 awarded by Universiti Malaysia Pahang (Status: Completed).
14. "Development of tribological / wear resistance of stainless steel by plasma nitriding" as a Project Leader, Internal Grant (RDU) amount: RM 17,000.00, RDU070344 awarded by Universiti Malaysia Pahang (Status: Completed).
15. "Development of CAM Manufacturing Machine" as a Researcher, Internal Grant (RDU) amount: RM30,000.00, RDU070307, awarded by Universiti Malaysia Pahang (Status: Completed).

Professional Qualification / Membership / Affiliation / Experience

1. Professional Technologist (Ts), Malaysia Board of Technologists (PT18050420)
2. Graduate Engineer, Board of Engineer, Malaysia (BEM) (51306A)
3. Graduate Engineer, Institution of Engineers Malaysia (IEM) (G29140)
4. Member, International Association of Engineers (IAENG) (101744)
5. Professional Member, IMM Institute of Materials, Malaysia (IMM No. M-4743)
6. Persatuan Staf Akademik UMP (PAKAD No. 244)
7. Session Chairperson, International MultiConference of Engineers and Computer Scientists 2009 (IMECS 2009), 18-20 March 2009, Regal Kowloon Hotel, Hong Kong.

Postgraduate Supervision

1. Master student: Rahil Izzati Bt Mohd Asri, research title: Study of Oxide Interlayer on 316L Stainless Steel Substrates Coated with Hydroxyapatite Using Sol-Gel Dip Coating Technique, status: graduated.
2. Master dissertation student: Fadirul Amri Bin Nasaruddin, research title: 3D Finite Element Analysis of Bolted Flanged and Lens Ring Joint, status: graduated.

Undergraduate Supervision – Final Year Project

No.	Name of Student	Title of Project
1	Ahmad Afham B. Aziz	Optimization of ZrO ₂ /HA coating parameters on surface treated of CoCrMo alloy
2	Muhammad HArriz B. Mohd Hasan	Finite Element Analysis of Biomedical Grade CoCrMo Alloy for Ankle Implant
3	Masriah Bt. Abu Bakar	Effect of Thermal Oxidation on Mechanical Properties of Co-Cr-Mo Alloy
4	Zaratunaimah Bt. Kolan	Study on Effect Flow on Carbon Steel in Oil and Gas Environment
5	Ting Ai Lan	Open-Hole Tension Characteristics of Glass/Polyester Composite
6	Muhammad Haziq B. Mazlan	Development of Fiber Reinforce Composite Multileaf Spring using E-Glass Fiber for Automotive Suspension Application
7	Nursyaza Dinie Bt. Mohamad Marzuki	Crushing Behaviour of Composite Square Honeycomb Structure: An Experimental Work
8	Tan Cheng Wen	Crushing Behaviour of Composite Square Honeycomb Structure: A Finite Element Analysis
9	Mohd Khairul Mizan B. Nasir	Study of Failure Mechanism of High Speed Steel Punching Tools in Punching Process
10	Ahmad Kahirul Hafizi B. Wahab	Study of the Effect of Punching Speed in Forming Process by using FEA Approach
11	Nazihah Bt. Shahrudin	Cylindricity of the Machine Workpiece Study in the Conventional Lathe Machine
12	Crispin Julip Jainul	Prediction on Chatter in CNC Grinding Machine in Machining AISI H13
13	Muhammad Faizulhidi B. Abdul Manan	The Development of Fitting Code Software for Assembly Parts
14	Mohd Hanaffi B. Othman	Stability of motion of the cam-follower system
15	Fathul Naim B. Abdul Jamil	Relationship Between Failure Mechanism with PCBN Tool
16	Mohd Azrul Aminur B. Ismail	Relationship Between Electrode Size and Machined Surface in the Electro-Discharge Machining
17	Nurul Shazwani Bt. Mehat	Effect of Machining Parameters on Surface Textures in Wire EDM of AISI 4140 Steel
18	Nadiah Waznah Bt. Zabidi	Experimental Determination of Convective Heat Transfer Coefficient in WEDM
19	Amir Ghaffari B. Khalid	Analysis of the Influence of EDM Parameters on Surface Quality, MRR and EW of WC-Co
20	Shamsul Shahrul B. Mat Yunus	Effects of Flushing on Electro-Discharge Machined Surface
21	Ahmad Nawawi B. Razali	Optimization of Electro Discharge Machining Parameters in Hole Drilling Using Taguchi Method
22	Mohd Zulhasmi B. Mohd Roby	Effect of Wire Electro-Discharge Machining on the Machining Damage of Tungsten Carbide
23	Rozaidi B. Ab. Rashid	Workpiece Surface Modification Using Wire Electro-Discharge Machining
24	Nurulhuda Bt. Mohamed Fahmi	Design and Analyze the Mold of Plastic Bottle for Injection Molding
25	Hishamuddin B. Dahlan	Development of Computer Integrated Manufacturing (CIM) Framework at FKM Lab

26	Zainuri B. Mahmud	Design and Fabricate the Adjustable Clamping Vise for EDM Die Sinking Machine
27	Siti Nur Sakinah Bt. Jamaluddin	The Improvement of Electric Kettle Performance
28	Mohd Saiful B. Mohd Stizic	Computational Fluid Dynamics Simulation and Validation of a Used-Oil Burner for a Metal Melting Furnace

Teaching Experience

1. YEAR 2018

Semester 1 Session 2018/2019
 BMM1821 Mechanical Laboratory 2
 BMM2612 Computer Aided Design
 BMM3643 Manufacturing Processes

2. YEAR 2017

Semester 1 Session 2017/2018
 BMM3643 Manufacturing Processes (Coordinator)
 BMM2613 Computer Aided Design

Semester 2 Session 2016/2017
 BHA2403 Manufacturing Processes (Coordinator)
 BMM2613 Computer Aided Design
 MME6144 Advanced Material
 DMM3663 CNC Technology (Coordinator)

3. YEAR 2016

Semester 1 Session 2016/2017
 BHA2612 Computer Aided Design (Coordinator)
 BMM3643 Manufacturing Processes

Semester 2 Session 2015/2016
 BHM1612 CAD Modelling (Coordinator)
 BMM3611 Manufacturing Lab Process
 BMM3643 Manufacturing Processes

4. YEAR 2015

Semester 1 Session 2015/2016
 BMM2613 Computer Aided Design (Coordinator)
 BMM2521 Engineering Mechanics Lab 2
 DMM2632 Industrial Design (Coordinator)

Semester 2 Session 2014/2015
 BMM2613 Computer Aided Design (Coordinator)
 BMM2521 Engineering Mechanics Lab 2

5. YEAR 2014

Semester 1 Session 2014/2015
 BMM2613 Computer Aided Design (Coordinator)

6. YEAR 2013

Semester 1 Session 2013/2014
 BMM3611 Manufacturing Processes Lab

7. YEAR 2010

Semester 2 Session 2009/2010
 DMM3999 Industrial Training (Coordinator)
 DMM3933 Industrial Training Report (Coordinator)
 BMM1612 Engineering Drawing (Coordinator)
 BMM1511 Engineering Mechanics Lab 1
 BMM4993 Industrial Training Report (Coordinator)

- 8. YEAR 2009**
Semester 1 Session 2009/2010
DMM3999 Industrial Training (Coordinator)
DMM3933 Industrial Training Report (Coordinator)
BMM2613 Computer Aided Design
- 9. YEAR 2008**
Semester 2 Session 2008/2009
BMM1511 Engineering Mechanics Lab 1 (Coordinator)
- Semester 1 Session 2008/2009
BMM2613 Computer Aided Design (Coordinator)
BMM1511 Engineering Mechanics Lab 1
- 10. YEAR 2007**
Semester 2 Session 2007/2008
BMM1511 Engineering Mechanics Lab 1 (Coordinator)
- Semester 1 Session 2007/2008
BMM2613 Computer Aided Design
BMM3923 Final Year Project 1 (Coordinator)
- Semester 3 Session 2006/2007
BMM1523 Engineering Materials (Coordinator)
- 11. YEAR 2006**
Semester 1 Session 2005/2006
BMM1511 Engineering Mechanics Lab 1 (Coordinator)
BMM3912 Final Year Project 1 (Coordinator)

Lists of Publications

A) International and National Journal

- Ganapathy, V., Kurniawan, T., **Ayu, H. M.**, Asmara, Y.P., Daud, R., Prastomo, N., Nandiyanto, A. B. D. "Aluminum alloy aa2024 coated with zro2 using a sol-gel-assisted dip-coating technique and its corrosion performance", 2018, Journal of Engineering Science and Technology, Vol. 13 (6), Pages 1713-1721.
- Shah, A., Izman, S., Ismail, S.N.F., **Mas Ayu, H.**, Che Kob, C.C., Daud, R., Abdul Kadir, M.R. "The influence of ultrasonic vibration frequency on the properties of TiN coated biomedical Ti-13Zr-13Nb", 2018, Metals, Vol. 8 (5), 317. (IF: 1.984)
- Shah, A., Izman, S., Ismail, S.N.F., **Mas Ayu, H.**, Daud, R., Abdul-Kadir, M.R. "Physical Vapour Deposition on Corrosion Resistance: A review", 2018, ARPN Journal of Engineering and Applied Sciences, Vol. 13 (10), Pages 3515-3523. (
- Shah, A., Izman, S., Ismail, S.N.F., **Mas-Ayu, H.**, Daud, R. "Study on adhesion strength of tin coated biomedical ti-13zr-13nb alloy", 2018, Jurnal Teknologi, Vol. 80(2), Pages 27-15.
- Mas Ayu, H.**, Izman, S., Daud, R., Shah, A., Anwar, M., Krishnamurithy, G. and Kamarul, T., "In-vitro biocompatibility study of hydroxyapatite coated on Co-Cr-Mo with oxide interlayer", 2018, Jurnal Teknologi, Volume 80, Issue 1, Pages 35-42.
- Mas Ayu, H.**, Daud, R., Author, Shah, A., Hazwan, H. M., Tomadi, S. H., Salwani, M. S. "Effect of thermal oxidation and carbon concentrations on Co-Cr-Mo alloy in enhanced corrosion protection", 2018, Materials Science Forum, Vol. 916 MSF, Pages 170-176.
- Daud, R., Suaidah, S., **Mas-Ayu, H.**, Tomadi, S. H., Salwani, M. S., Shah, A., Abdul-Kadir, M. R. "Neural network as an assisting tool in designing talus implant", 2018, Materials Science Forum, Vol. 916 MSF, Pages 153-160.

8. Shah, A., Izman, S., Abdul-Kadir, M.R. and **Mas-Ayu, H.**, "Influence of Substrate Temperature on Adhesion Strength of TiN Coating of Biomedical Ti-13Zr-13Nb Alloy", 2017, Arabian Journal for Science and Engineering, Volume 42, Issue 11, Pages 4737-4742. (IF: 0.84)
9. **H Mas Ayu**, S Izman, R Daud, G Krishnamurthy, A Shah, SH Tomadi, MS Salwani, "Surface Modification on CoCrMo Alloy to Improve the Adhesion Strength of Hydroxyapatite Coating", 2017, Procedia Engineering, Vol. 184, Pages 399-408.
10. Zakaria, F.A., Daud, R., **Mas Ayu, H.**, Tomadi, S.H., Salwani, M.S. and Abdul Kadir, M.R., "The effect of position and different size of radial hole on performance of cannulated pedicle screw", MATEC Web of Conferences, Vol. 108, 2017, Article number: 130012017 International Conference on Mechanical, Aeronautical and Automotive Engineering, ICMAA 2017; Malacca; Malaysia.
4. SH Tomadi, JA Ghani, CH Che Haron, **H Mas Ayu**, R Daud, "Effect of Cutting Parameters on Surface Roughness in End Milling of AISi/AlN Metal Matrix Composite", 2017, Procedia Engineering, Volume 184, Pages 58-69.
5. SH Tomadi, JA Ghani, **H Mas Ayu**, R Daud, "Tool wear of uncoated carbide and PVD TiAlN coated carbide tools in end milling of AISi/AlN metal matrix composite", 2017, International Journal of Advanced and Applied Sciences, Volume 4, Issue 9, Pages 150-155.
6. **H Mas Ayu**, R Daud, A Shah, MY Faiz, HM Hazwan, MS Salwani, SH Tomadi, MS Reza, "Thermal oxidation process improved corrosion in cobalt chromium molybdenum alloys", 2017, International Journal of Advanced and Applied Sciences, Volume 4, Issue 9, Pages 144-149.
7. R Hafsham, MS Salwani, **H Mas-Ayu**, Daud Rosdi, "Flexural Performance of the Heat-Treated Boron Alloyed Steel", 2017, Materials Science Forum, Volume 909, Pages 21-26.
8. RIM Asri, WSW Harun, **MA Hassan**, SAC Ghani, Z Buyong, "A review of hydroxyapatite-based coating techniques: Sol-gel and electrochemical depositions on biocompatible metals", 2015, Journal of the Mechanical Behavior of Biomedical Materials, Vol. 57, pp 95-108. (IF: 3.417)
9. Shah, A, Izman, S. and **Hassan, M. A.**, "Influence of nitrogen flow rate in reducing tin microdroplets on biomedical Ti-13Zr-13Nb alloy", 2016, Jurnal Teknologi, Volume 78, Issue 5-10, 2016, Pages 6-10.
10. Shah, A., Izman, S., **Hassan, M. A.** and Mustapha, R., "Optimization of chemical pretreatment for removing cobalt on tungsten carbide substrate using response surface methodology" Jurnal Teknologi, 2016, Volume 78, Issue 5-10, 2016, Pages 16-32.
11. **H Mas-Ayu**, S Izman, A Kadir, M Rafiq, R Daud, A Shah, MFM Yusoff, "Influence of Carbon Concentrations in Reducing Co and Cr Ions Release in Cobalt Based Implant: A Preliminary Report", 2014, Advanced Material Research, Vol. 845 (2014), pp 462-466.
12. Mohd Faiz Mohd Yusoff, Mohammed Rafiq Abdul Kadir, Nida Iqbal, **Mas Ayu Hassan**, Rafaqat Hussain "Dipcoating of poly (ϵ -caprolactone)/hydroxyapatite composite coating on Ti6Al4V for enhanced corrosion protection", 2014, Surface & Coatings Technology Vol. 245 (2014), pp 102-107. (IF: 1.9)
13. E. M. Nazim, S.Izman, A. Ourdjini, T. Abubakar, **H. Mas-Ayu** "Adhesion Strength of HFCVD Diamond Coating on WC Substrate Seeded With Diamond and Different Ratios of SiC Powders", 2014, Advanced Materials Research Vol. 845 (2014) pp 467-471.
14. A. Shah, S. Izman, Mohammed Rafiq Abdul-Kadir, **H. Mas Ayu**, Mahmood Anwar, Azanizawati Ma'aram "Influence of Bias Voltage on Corrosion Resistance of TiN coated on Biomedical TiZrNb Alloy", 2014, Advanced Materials Research Vol. 845 (2014) pp 436-440.
15. S Izman, **MA Hassan**, MRA Kadir, MR Abdullah, M Anwar, A Shah, R Daud "Effect of Pretreatment Process on Thermal Oxidation of Biomedical Grade Cobalt Based Alloy", 2012, Advanced Material Research, Vol. 399-401 (2012), pp 1564-1567.
16. S. Izman, A. Shah, Mohammed Rafiq Abdul-Kadir, E. M. Nazim, Mahmood Anwar, **M. A. Hassan** and Habib Safari "Effect of Thermal Oxidation Temperature on Rutile Structure Formation of Biomedical TiZrNb Alloy", 2012, Advanced Materials Research Vols. 393-395 (2012), pp 704-708.

17. S. Izman, Mohammed Rafiq Abdul-Kadir , Mahmood Anwar , E. M. Nazim, Adila Nalisa, A. Shah, R. Rosliza and **M. A. Hassan** "Effect of carburization Temperature on the Formation of Carbide Layer on Vanadium Free Titanium Alloy ", 2012, Sains Malaysiana (accepted).
18. **M. A. Hassan**, H. Musa, S. Sharif, D. Rosdi, S. H. Tomadi, "Surface Integrity Study in WEDM of Tungsten Carbide", Journal of Solid State Science and Technology, 2009.

B) International and National Conference Papers

1. **M. A. Hassan**, S. Izman, Mohammed Rafiq Abdul-Kadir, R. Daud, Mohd Faiz Mohd Yusoff, Mahmood Anwar and A. Shah, "Creating Oxide Interlayer Through Thermal Oxidation Improves Adhesion Strength of Hydroxyapatite Coating on Co-Cr-Mo Substrates", World Bio Summit & Expo 412th OMICS International Conference, 2-4 November 2015, Dubai UAE, Vol. 5, Issues 7, ISSN: 2155-952X.
2. **M. A. Hassan**, H. Musa, S. Sharif, D. Rosdi, S. H. Tomadi, "Wire Electrical Discharge Machining of Tungsten Carbide", Malaysian Science and Technology Congress (MSTC 2008), 16-17 December, Kuala Lumpur Convention Centre, Kuala Lumpur, 551-557, 2008.
3. **M. A. Hassan**, R. Daud, S. N. S. Jamaludin, "Design and Analysis for the Improvement of Electric Kettle Performance", National Conference of Design and Concurrent Engineering 2008, 28-29 October, Avillion Legacy Hotel, Melaka, 363-368, ISBN 978-983-2948-54-4, 2008.
4. **M. A. Hassan**, H. Musa, S. Sharif, D. Rosdi, S. H. Tomadi, "Study of the Surface Integrity of the Machined Workpiece in the WEDM of Tungsten Carbide", Malaysian Metallurgical Conference 2008, 3-4 December, Danau Golf Club, Universiti Kebangsaan Malaysia, 2008.
5. M. M. Noor, M. M. Rahman, K. Kadirgama, M. R. M. Rejab, Z. Ghazalli, **M. A. Hassan**, "Development of a Cutting Tool for Printed Circuit Board using Mild Steel", 7th UMT International Symposium on Sustainability Science and Management (UMTAS) 8-10 June, ISBN 978-983-2888-72-7, 2008.
6. M. A. Azmir, M. S. Reza, **H. Mas Ayu**, M. Hamdi, "Multi-objective Optimization of Injection Flushing Type of Electrical Discharge Machining Process", The 9th Asia Pacific Industrial Engineering & Management Systems Conference, 3-5 December, Bali, Indonesia. 2008.
7. S. H. Tomadi, M. A. Azmir, Z. Hamedon, R. Daud, **M. A. Hassan**, Y. Mamat, "Modeling and Simulation of Wire Electrical Discharge Machine Process in Machining Aluminium Alloy T6 6061", Malaysian Science and Technology Congress (MSTC 2008), 16-17 December, Kuala Lumpur Convention Centre, Kuala Lumpur, 558-564, 2008.
8. R. Daud, **M. A. Hassan**, S. H. Tomadi, "Parameter Optimization of CNC Lathe Machine Using Adaptive Network-Fuzzy Inference System (ANFIS)", Malaysian Science and Technology Congress (MSTC 2008), 16-17 December, Kuala Lumpur Convention Centre, Kuala Lumpur, 2008.
9. R. Daud, **M. A. Hassan**, S. H. Tomadi, A. Yusof, "Conceptual Design of Two-Plate Injection Mold for UMP's Keychain", National Conference on Design and Concurrent Engineering (DECON 2008), 28-29 October, Melaka, 2008.
10. **M. A. Hassan**, N. S. Mehat, S. Sharif, R. Daud, S. H. Tomadi, M. S. Reza, "Study of the Surface Integrity of AISI 4140 Steel in Wire Electrical Discharge Machining", The 2009 IAENG International Conference on Industrial Engineering, 18-20 March, Hong Kong, vol. 2, 1666-1671. ISBN 978-988-17012-7-5, 2009.
11. **M. A. Hassan**, S. Sharif, R. Daud, S. S. M. Yunus, S. H. Tomadi, M. S. Reza, "The Effects of Flushing Pressure in Electro Discharge Machining on Tungsten Carbide." International Conference on Advances in Mechanical Engineering, 24-25 June, Concorde Hotel Shah Alam, Selangor. 2009.
12. **M. A. Hassan**, S. Safian, M. A. C. Omar, R. Daud, S. H. Tomadi, M. S. Reza, "Taguchi Method in Determining the Optimum Spot Welding Parameters for Automotive Component", International Advanced Technology Congress 2009, 3-5 November, Universiti Putra Malaysia, Serdang, Selangor, Malaysia, 2009.
13. S.H. Tomadi, **M. A. Hassan**, Z. Hamedon, R. Daud, A. G. Khalid, "Analysis of the Influence of EDM Parameters on Surface Quality, Material Removal Rate and Electrode Wear of Tungsten Carbide." International MultiConference of Engineers and Computer Scientists 2009, 18-20 March, Hong Kong, vol. 2, 1803-1808. ISBN 978-988-17012-7-5, 2009.

14. S. H. Tomadi, **M. A. Hassan**, M. S. Reza, Z. Hamedon, R. Daud, M. A. A. Ismail, "Surface Roughness Evaluation of Tungsten Carbide as Electrode in EDM Processes", International Conference on Advances in Mechanical Engineering, 24-25 June, Concorde Hotel Shah Alam, Selangor. 2009.
15. S. H. Tomadi, R. Daud, **M. A. Hassan**, M. S. Reza, Z. Hamedon, M.F. Wahab, "Optimum Parameters for Surface Roughness Evaluation in Milling Processes", 11th International Conference on Optimum Design of Structures and Materials in Engineering, 8-10 June, Algarve, Portugal, 2009.
16. R. Daud, N. K. Hasfa, S. H. Tomadi, **M. A. Hassan**, K. Kadirgama, M. M. Noor, M. R. M. Rejab, "Prediction of Chatter in CNC Machining Based on Dynamic Cutter Force for Ball End Milling", The 2009 IAENG International Conference on Industrial Engineering, 18-20 March, Hong Kong, vol. 2, 1751~1756. ISBN 978-988-17012-7-5, 2009.
17. R. Daud, N. M. Noor, **M. A. Hassan**, S. H. Tomadi, M. R. M. Rejab, M. A. Muhamad, K. Kadirgama, M. M. Noor, M. S. M. Sani, "Optimization Drilling Process of Glass Fiber Reinforced Plastics", International Conference on Advances in Mechanical Engineering, 24-25 June, Concorde Hotel Shah Alam, Selangor, 2009.
18. R. Daud, **M. A. Hassan**, Z. Ezree, S. H. Tomadi, M. M. Noor, K. Kadirgama, M. R. M. Rejab, "Study of Machining Parameters of Surface Roughness in Electro Discharge Machining of Tool Steel." International Advanced Technology Congress 2009, 3-5 November, Universiti Putra Malaysia, Serdang, Selangor, Malaysia, 2009.
19. M. S. Reza, K. A. Idris, S. H. Tomadi, **M. A. Hassan**, W. S. W. Harun, M. A. Azmir, "Effects of Machining Characteristics on Electric Discharge Machine Using Different Electrode Materials", International Conference on Advances in Mechanical Engineering, 24-25 June, Concorde Hotel Shah Alam, Selangor. 2009.
20. M. S. Reza, Khairul Anuar, S. H. Tomadi, **M. A. Hassan**, W. S. W. Harun, M. A. Azmir, Z. Hamedon, "Effects of Machining Characteristics on Electrical Discharge Machining Using Different Types of Electrode Materials", Malaysian Technical Universities Conference on Engineering and Technology (MUCEET), 20-22 June, MS Garden, Kuantan, Pahang, Malaysia, 2009.
21. M. S. Reza, Nor Farhanah, S. H. Tomadi, **M. A. Hassan**, W. S. W. Harun, M. A. Azmir, "Effects of Hole Taper on High Speed Steel Workpiece Using Edm Injection Flushing", 11th International Conference on Optimum Design of Structures and Materials in Engineering, 8-10 June, Algarve, Portugal, 2009.

List of Books/Research Module

1. Rosdi Daud and **Mas Ayu Hassan**, "New Approach of Ankle Morphometric Measurements for Total Ankle Arthroplasty (TAA) Design", 2017, status: submitted to Penerbit UMP.
2. Arman Shah Abdullah, **Mas Ayu Hassan** and Rosdi Daud, "Surface Modification of Titanium Alloy for Biomedical Purposes", status: submitted to Research Module in Materials Science & Materials Engineering, Elsevier.
3. S. Izman, Mohammed Rafiq Abdul-Kadir, Mahmood Anwar, E. M. Nazim, R. Rosliza, A. Shah and **M. A. Hassan**, "Surface Modification Techniques for Biomedical Grade of Titanium Alloys: Oxidation, Carburization and Ion Implantation Processes", 2012, Intech Publisher, Croatia, ISBN 978-953-308-52-3, Book Chapter-Chapter 9, 201-228.

Awards / Research / Achievements

1. **Research Award: Silver** – Title: Smart Innovative Assistive Medical Kit for Visually Impair Individuals, Creation, Innovation, Technology & Research Exposition (CITREX 2017), Project Researcher, UMP Gambang, 15-16 March 2017.
2. **Research Award: Bronze** – Title: Ergonomical Smart Innovative White Cane, Creation, Innovation, Technology & Research Exposition (CITREX 2017), Project Researcher, UMP Gambang, 15-16 March 2017.
3. **Research Award: Silver** - Title: Innovative Assistive Medical Kit for Visually Impaired People, UMP TVET Exposition 2017, Project Researcher, UMP Gambang, 19-20 September 2017.

4. **Research Award: Bronze** – Title: CarJack Using Internal Car Power, 20th International Invention, Innovation, Industrial Design & Technology Exhibition (ITEX09), Project Researcher, PWTC Kuala Lumpur, 15–17 May 2009.
5. **Research Award: Bronze** – Title: Machining Optimization Parameters (RSM) and Genetic Algorithms (GA) Application for Blow Mould Development, Malaysia Technology Expo (MTE) 2009, Project Researcher, 19–21 Feb, PWTC, Kuala Lumpur.
6. **Anugerah Cendikia Bitara**– Kategori Penerbitan Jurnal (2016) Title: A review of hydroxyapatite-based coating techniques: Sol–gel and electrochemical depositions on biocompatible metals, Journal of the Mechanical Behavior of Biomedical Materials, IF: 3.417.
7. **Anugerah Cendikia Bitara** – Kategori Penerbitan Jurnal (2015) Title: Dipcoating of poly (ϵ -caprolactone)/hydroxyapatite composite coating on Ti6Al4V for enhanced corrosion protection, Surface & Coatings Technology, IF:1.9.
8. **Anugerah Perkhidmatan Cemerlang (APC)**, awarded by Faculty of Mechanical Engineering, UMP, 2008.

List of Course / Training / Conference Attended

Date	Program	Status
29 Aug 2018	Invited Trainer for STEM Program Solidworks Software Workshop, Lab CAE1, FKM, UMP	Trainer
6 Feb – 5 Feb 2020	Teaching Mentor by Persatuan Staf Akademik Universiti Malaysia Pahang (PAKAD)	Mentor
26 Oct – 29 Oct 2017	2018 3rd International Conference on Materials Technology and Applications (ICMTA 2017) (with certificate)	Paper Presenter
20 Aug – 20 Oct 2017	Training organized by AKEPT title Learning Engagement & Motivation level 1 (beginner), 2 (intermediate) & 3 (expert) (with certificate)	Participant
1-2 Aug 2017	The 4 th International Conference on Mechanical Engineering Research (ICMER 2017), Swiss-Garden Beach Resort Kuantan	Committee
3 Jun 2017	Program Gotong-royong Penyediaan Juadah Berbuka Puasa di Masjid Lama Permatang Badak Kuantan organized by PAKAD (with certificate)	Volunteer
19 – 22 Dec 2016	Training on Solidworks Essential (with certificate)	Participant
21 – 22 Oct 2016	Attending 5 th International Conference on Global Optimization and Its Applications 2016, Bandung, Indonesia (with certificate)	Paper Presenter
5 Oct 2016	Attending Seminar on Road Hierarchy Planning And Performance Assessment Methodology, IEM Pahang, Zenith Hotel, Kuantan (with certificate)	Participant
18 – 28 Jan 2016	Autodesk CAD Training, FKM UMP Pekan (with certificate)	Participant
10 Dec 2015	Program Pengurusan Sisa Pepejal (PSP) dan Kitar Semula (3R) Peringkat Universiti 2015, Perpustakaan UMP Pekan	Participant
2 – 4 Nov 2015	Attending World Bio Summit & Expo, OMICS International, Dubai UAE (with certificate)	Paper Presenter
10-11 Sept 2015	BEM Course (Code of Ethics), Dewan Tun Teja 1, UMP Gambang (with certificate)	Participant
10 – 12 April 2015	Bengkel Perancangan Strategik, Century Pine Resort, Cameron Highlands	Participant
4 April 2015	Appointment as Chairman for University Scholarship Scheme Interview (MRS/DRS)	Chairman
5 Mac 2015	Workshop on Application for Professional Engineer, Sri Manja Boutique Hotel, Kuantan (talk by Ir Hasril Hasini)	Participant
24-26 Sept 2012	Training on Bruker D5000 XRD Instrument courses on theory of X-Rays, DiffracPlus Evaluation Package Software, PDF-2 Search/Match Applications, Sample Preparations and System Operations, UTM Skudai (with certificate)	Participant
26- 28 Sept 2011	Training on Struers Tegramin -25 and specimen preparation, UTM Skudai (with certificate)	Participant
22- 23 Dec 2009	Introduction and Awareness Training ISO 9001:2008, UMP Pekan (with certificate)	Participant

3-5 Nov 2009	International Advanced Technology Congress (ACTi200()), PWTC, Kuala Lumpur (with certificate)	Paper presenter
24-25 June 2009	International Conference on Advances in Mechanical Engineering, Concorde Hotel Shah Alam, Selangor. (with certificate)	Paper presenter
4-5 June 2009	Bengkel Kerja Pensijilan MS ISO/IEC 17025/2005 (with certificate)	Participant
11 May 2009	Bengkel Pemurnian Kurikulum Program Diploma (DMM) Fakulti Kej. Mekanikal (with certificate)	Group Leader
5 May 2009	FKM EAC Self Assessment Report Workshop (with certificate)	Group Leader
18-20 Mar 2009	International MultiConference of Engineers and Computer Scientist 2009, Regal Kowloon Hotel, Hong Kong. (with certificate)	Session Chairperson & Paper presenter
19-21 Feb 2009	Malaysian Technology Expo, MTE 2009, Putra World Trade Center, Kuala Lumpur. (1 Research Product Exhibition and Competition), 1 Bronze Award. (with certificate)	Project Researcher
6 Feb 2009	Training on Matsuzawa Digital Microvicker Hardness Tester MMT-X7 Type B, UMP (with certificate)	Participant
30 Jan-1 Feb 2009	Workshop of Preparation Sciencefund Proposal, The Legend Cherating Resort	Participant
10 Jan 2009	Basic MSC Patran / Nastran Training, UMP (with certificate)	Participant
16-17 Dec 2008	Malaysian Science and Technology Congress, MSTC08, 16-17 Dec, KLCC, Malaysia, 2008. (with certificate)	Paper presenter
3-4 Dec 2008	Malaysian Metallurgical Conference 2008, 3-4 December, Danau Golf Club, Universiti Kebangsaan Malaysia (with certificate)	Paper presenter
1-3 Dec 2008	FKM OBE Workshop: Curriculum Transformation and Teaching Plan Review, Selesa Hilhomes, Bukit Tinggi.	Group leader
28-29 Oct 2008	National Conference on Design and Concurrent Engineering (DECON08), 28-29th October 2008, Avillion Legacy Hotel, Melaka (with certificate)	Paper presenter
10-11 Sept 2008	Induction Course, UMP Special Module – UMP. (with certificate)	Participant
16 Aug 2008	Bloom Taxonomy and OBE CQI Workshop. UMP	Participant
25-27 June 2008	Motivation and Caunseling Skills, UMP (with certificate)	Participant
16-17 June 2008	Classroom Management, UMP (with certificate)	Participant
17-29 May 2008	Induction Course. Overall Module – Summerset Beach Resort, Rompin. (with certificate)	Participant
5-6 May 2008	Workshop on Staff Academic Leadership Skill, Vistana Hotel, Kuantan (with certificate)	Participant
21-23 April 2008	Algor Basic Software Training (with certificate)	Participant
29 Feb ~2 Mar 2008	FKM Outcome Base Education Training, Holiday Villa, Cherating.	Participant
4-5 Feb 2008	Engineering Contract Training, Board of Engineer Malaysia (BEM) mandatory training for professional engineer (PE) by Ir. Harban Singh. (with certificate)	Participant
29-30 Dec 2007	Occupational Safety and Health Training, Board of Engineer Malaysia (BEM) professional engineer (PE) mandatory training by CMD(R) Ir. Raymond Sua. (with certificate)	Participant
27-28 Dec 2007	Management Skill Training, Board of Engineer Malaysia (BEM) mandatory training for PE by CMD(R) Ir. Raymond Sua. (with certificate)	Participant
10 Dec 2007	Training on academic advisor and Student Motivation and Counselling, Ms Garden, Kuantan – UMP (with certificate)	Participant
2-8 September 2007	Research Methodology (SLAB) Course (with certificate)	Participant
4 Aug 2007	Conference on Lecturer Professionalisms Development (Effective Supervision) (with certificate)	Participant
6 Jul 2007	Outcome Base Education Training, Sg Tembling Resort, Kuantan.	Participant
23-26 Jun 2007	Teaching and Learning Course, Module 1 – La Paris Hotel, Port Dickson	Participant
27-29 May 2007	How to Make Facilitation Works for You as a Great Lecturer Workshop, Quality Hotel, Kuala Lumpur. (with certificate)	Participant
21-25 May 2007	Solidworks Customized Training Course (with certificate)	Participant
3 May 2007	Engineering Education Conference 2007, MS Garden, Kuantan (with certificate)	Participant
27-28 Aug 2006	Effective Supervisory Skill (Basic), Hotel Selesa, Johor Bahru (with certificate)	Participant