MyRA IMPACT ACTIVITIES

Name :	HEDZLIN BINTI ZAINUDDIN
Faculty :	Faculty of Applied Sciences
Staff No :	164506
Grade of Position (VK7/DM54/DM52 etc)	DM52
Pasport/MyKad No. :	770806-05-5926
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BASIC PROFILE

Lecturer DM45/DM46/DM51/DM52/DM53/DM54

Appointments	**Date/Year of Appointment**
Lecturer DM45/DM46	**2003**
Lecturer DM52/DM51	**2011**
Lecturer DM53/DM54/DT1	**-**
Professor (VK7)	**-**
Professor (VK6)	**-**
Year of Birth :	**1977**
Ph.D Qualification (Year Obtained)	**Physics, Photovoltaics (2014)**
Competency Certificate (Year Obtained)	**1)** ISPQ, Malaysia Photovoltaics (2009); **PTM-09/030** **2)** SEDA Malaysia Grid-Connected Photovoltaic Systems Design Course(2014); **SPCPDN00090** **3)** Train-the-Trainers Course for the ISP-accredited Design & Installation Grid-Connected PV Systems (RENAC, Germany)(2012); **SEDA/RENAC/MT/12/001**

POSTGRADUATE SUPERVISION

NO	ROLE	CANDIDATE	COURSE/LEVEL	TITLE	DURATION
1	Co-Supervisor	Noorfarhana binti Mat Yusoff	AS759 Master of Science (Physics)	Thermal Impact on Output of PV Modules	March 2015 – 2018 - Completed
2	Main Supervisor	Muhamad Mukhzani bin Muhamad Hanifah	AS759 Master of Science (Physics)	Nominal Operating Cell Temperature (NOCT) in Tropical Region	September 2016 – present
3	Main Supervisor	Ardin bin Manja (Part Time)	AS759 Master of Science (Physics)	Nominal Module Operating Temperature (NMCT) in Tropical Region	September 2018 - present

RESEARCH FUNDINGS *(State whether Principal/Co-Researcher)*

NATIONAL LEVEL ACTIVE RESEARCH FUNDING (MOSTI/FRGS & Others) (Last Five Years)

	Research Project	Source	Total Funds	Begin Year	End Year
1	**Co-researcher**, Designing Discovery Algorithms for Data Relationship and Multi – Level Data density in Parallel Coordinates Graph (600-IRMI/FRGS 5/3 (022/2017))	FRGS	RM56,699.40	2017	2019
2	**Principal Researcher**, Anatomy of photovoltaic module temperature for tropical region (FRGS/1/2014/TK06/UITM/02/2)	FRGS	RM86,000	2014	2016 (Completed)
3	**Co-researcher**, Temperature differential expression for operating cell temperature of crystalline photovoltaic modules in varied built environment	FRGS	RM81,000	2014	2016

INDUSTRIAL RESEARCH FUNDING INCLUDING CONTRACT RESEARCH (Last Five Years)

	Research Project	Source	Total Funds	Begin Year	End Year
1	**Co-researcher** - Monitoring of grid-connected photovoltaic systems in Malaysia	MBIPV Project-KETTHA	RM250,000	2007	2013 (Completed)

Geran Dalaman UiTM (Last Five Years)

	Research Project	Total Funds	Begin Year	End Year
1	**Principle Researcher**, Module Temperature Modelling for Free-Standing Photovoltaic System in Equatorial Climate	RM40,000	Mac2017	Mac2019
2	**Co-researcher**-Improved Firefly Algorithm Using Adaptive Light Absorption Coefficient (600-RMI/ST/DANA 5/3/CG(9/2012))	RM 80,000	2012	2014
3	**Co-researcher**- Grid-Connected Photovoltaic Systems Monitoring	RM268,980	2009	2013 (Completed)

Projek Perundingan (Last Five Years)

	Research Project	Project value (RM)	Begin Year	End Year
1	**Member**, Design, develop, supply, deliver, install, test, commission, train and maintenance of a National Solar PV Monitoring and Performance database.	499, 650.29	Aug2017	July2020
2	**Member,** Training the Trainers (TOT) Kursus Pemasangan Sistem Solar Fotovolta Tersambung Grid	79, 500.00	7/9/2015	9/9/2015
3	**Member,** Testing & Commisioning (T&C) semua sistem Solar Fotovolta (PV) di seluruh Malaysia dalam skema 'Feed In Tariff'	116, 000.00	Jan2014	Jan2018
4	**Member,** Penyediaan data Solar Irradiation di Malaysia	50, 000.00	Sept2014	April2015
5	**Member,** Training the Trainers (TOT) Kursus Pemasangan Sistem Solar Fotovolta Tersambung Grid	49, 500.00	10/9/2015	11/9/2015
6	**Member,** TOT Pemasangan dan Penyelenggaraan Solar Fotovolta Tersambung Grid	18, 020.00	10/7/2017	14/7/2017

PUBLICATIONS (*Only those indexed in IEEE/ISI/SCOPUS*)

(Please ensure that you indicate whether papers are indexed in IEEE/ISI/Scopus, also indicate the impact factor if available)

PUBLICATION FOR 2018

[1] M. Hanifah, H. Zainuddin, and M. Hussin, (2018). "Establishment of Standard Reference Environment for Photovoltaic Nominal Operating Cell Temperature Testing with Dedicated Approach for Tropical Region," Indonesian Journal of Electrical Engineering and Computer Science, vol. 12, 2018. **{SCOPUS}**

PUBLICATION FOR 2017

[1] Yusoff, N. F., Zakaria, N. Z., Zainuddin, H., & Shaari, S. (2017). Mounting Configuration Factor for Building Integrated Photovoltaic and Retrofitted Grid-connected Photovoltaic System. *Science Letters, 11*, 1.

[2] Hanifah, M. M. M., H. Zainuddin, et al. (2017). "Evaluation of Standard Reference Environment for Photovoltaic Nominal Operating Cell Temperature Testing in Malaysia." Indonesian Journal of Electrical Engineering and Computer Science **8**(1): 245-252. **{SCOPUS}**

[3] Idrus, Z., N. A. S. Abdullah, et al. (2017). Software Application for Analyzing Photovoltaic Module Panel Temperature in Relation to Climate Factors. International Conference on Soft Computing in Data Science. Singapore, Springer**:** 197-208. **{SCOPUS}**

[4] Idrus, Z., H. Zainuddin, et al. (2017). " Visual Analytics: Designing Flexible Filtering in Parallel Coordinate Graph." Journal of Fundamental and Applied Sciences **9**(5S): 23-32. **{ESCI WOS}**

PUBLICATION FOR 2016

[1] Yusoff, N. F., Zakaria, N. Z., **Zainuddin, H**., & Shaari, S. (2016). Operating temperature of photovoltaic module for retrofitted grid-connected photovoltaic system on metal roof. *International Journal of Simulation: Systems, Science and Technology*, *17*(41), 54.1-54.5. DOI: 10.5013/IJSSST.a.17.41.54 **{SCOPUS}**

[2] Bostamam, N. H., **Zainuddin, H.**, & Sulaiman, S. I. (2016). Module operating temperature model for free-standing photovoltaic system in malaysia using principal component regression. *International Journal of Simulation: Systems, Science and Technology*, *17*(41), 53.1-53.6. DOI: 10.5013/IJSSST.a.17.41.53 **{SCOPUS}**

[3] Bostamam, N. H., H. Zainuddin, et al. (2016) Module temperature model for retrofitted PV system in Malaysia using principal component regression. IET Conference Proceedings 98 (96 .)-98 (96 .) **{SCOPUS}**

PUBLICATION FOR 2015

[1] **Zainuddin, H**., Sallo, M. S., Shaari, S., Omar, A. M., & Sulaiman, S. I. (2015, 19-20 Oct. 2015). *Photovoltaic module temperature profile for Malaysia.* Paper presented at the 2015 IEEE Conference on Energy Conversion (CENCON). **{IEEE/SCOPUS}**

[2] Sulaiman, S. I., Zainol, N. Z., Othman, Z., & Zainuddin, H. (2015). *Proceedings of 2014 International Conference on Modelling, Identification and Control, ICMIC 2014.* Paper presented at the Institute of Electrical and Electronics Engineers Inc. **{IEEE/SCOPUS}**

PUBLICATION FOR 2014

[1] S. Sulaiman, Zainol. N.Z, Othman. & **H.Zainuddin**. ., "Modeling of Operating Photovoltaic Module Temperature Using Hybrid Cuckoo and Artificial Neural Network," in *Knowledge Management and Acquisition for Smart Systems and Services*. vol. 8863, Y. Kim*, et al.*, Eds., ed: Springer International Publishing, 2014, pp. 29-37. **{SCOPUS}**

[2] N. Z. Zakaria*,* **H.Zainuddin***,* S.Shaari & R.Ismail*.*, "Critical factors affecting retrofitted roof-mounted photovoltaic arrays: Malaysian case study," in *Clean Energy and Technology (CEAT), 2013 IEEE Conference on*, 2013, pp. 384-388. **{SCOPUS}**

[3] *Atiqah Hamizah binti Mohd Nordin, Ahmad Maliki bin Omar, Hedzlin binti Zainuddin , "*Modeling and Simulation of Grid Inverter in Grid-Connected Photovoltaic System", International Journal of Renewable Energy Research (IJRER) 4 (4), 949-957 **{SCOPUS}**

PUBLICATION FOR 2013

[1] **H.Zainuddin***,* M.Z.Hussin, S.Shaari, A.M.Omar & S.I.Sulaiman. "Modelling of Operating Temperature for Thin Film Modules for Free-Standing Systems in Malaysia," in Clean Energy Technology 2013 (CEAT2013), 2013. **{IEEE/SCOPUS}**

[2] N.I.Zakaria**, H.Zainuddin,** S.Shaari, S.I.Sulaiman & R.Ismail. **"**Critical factors affecting retrofitted roof-mounted photovoltaic arrays: Malaysian case study" in Clean Energy Technology 2013 (CEAT2013), 2013. **{IEEE/SCOPUS}**

[3] T. N. Hussain, S. I. Sulaiman, I. Musirin, S. Shaari, and **H. Zainuddin**, "A hybrid artificial neural network for grid-connected photovoltaic system output prediction," in *Computers & Informatics (ISCI), 2013 IEEE Symposium on*, 2013, pp. 108-111. **{IEEE/SCOPUS}**

[4] F. S. A. Aziz, S. I. Sulaiman, and **H. Zainuddin**, "A prototype of an integrated pyranometer for measuring multi-parameters," in *Signal Processing and its Applications (CSPA), 2013 IEEE 9th International Colloquium on*, 2013, pp. 73-77. **{IEEE/SCOPUS}**

PUBLICATION FOR 2012

[1] M.Z.Hussin, A.M.Omar, Z.Md.Zain, S.Shaari and **H.Zainuddin**., "Design impact of 6.08 kWp grid-connected photovoltaic system at Malaysia Green Technology Corporation " *International Journal of Electrical and Electronic Systems Research,* vol. 5, 2012.

PUBLICATIONS FOR 2011

[1] **H.Zainuddin***,* S.Shaari, A.M.Omar, S.I.Sulaiman., "Power prediction for grid-connected photovoltaic system in Malaysia," in *Sustainable Energy & Environment (ISESEE), 2011 3rd International Symposium & Exhibition in*, 2011, pp. 110-113. **{IEEE/SCOPUS}**

[2] **H.Zainuddin***,* S.Shaari, A.M.Omar, S.I.Sulaiman, "Operating Temperature Correlation with Ambient Factors of Building Integrated Photovoltaic (BIPV) Grid-Connected (GC) System in Malaysia," *International Review on Modelling and Simulations (I.RE.MO.S.),* vol. 4, pp. 1992-1998, 2011. **{SCOPUS}**

[3] **H.Zainuddin**, , S.Shaari, A.M.Omar, S.I.Sulaiman, Z.Mahmud, F.Muhamad Darus, "Prediction of module operating temperatures for free-standing (FS) photovoltaic (PV) system in Malaysia," *International Review on Modelling and Simulations (I.RE.MO.S.),* vol. 4, pp. 3388-3394, 2011. **{SCOPUS}**

PUBLICATION FOR 2009

[1] **H.Zainuddin***,* S.Shaari, A.M.Omar, Z.Md.Zain, J.Soumin and Z.Surat, "Preliminary investigations on the effect of humidity on the reception of visible solar radiation and the effect of humidity and wind speed on PV module output," in *Progress of physics research in Malaysia PERFIK 2009*, Melaka, Malaysia, 2009, pp. 55-58. **{SCOPUS)**

[2] Malek M.F., **Zainuddin H**., Rejab S.N.M., Shaari S.N., Shaari S., Omar A.M., Rusop M., "Monitoring of a 1 kWp solar photovoltaic system", (2009) AIP Conference Proceedings, 1136, pp. 621-626.

PUBLICATION FOR 2008

[1] A.M.Omar, R.A.H.A.Kadir, L.Rimon, P.Mazlan, A. R. Ghazali, K.S. Muhammad, Z.M.Darus, H. C. M. Haris, Z.M. Zain, **H. Zainuddin**, S.I.Sulaiman, M. Mustaffa, W.F.Abbas and S.Shaari. " Performance of Grid-Interactive Inverters in the MBIPV Project: Case Study for PTM-ZEO Building" 9th SENVAR + 2nd ISESEE 2008 humanity + technology, 1-3 December 2008, Proceedings, pg 489-496

[2] M.Mustaffa, W.F.Abbas, P.Mazlan, H.C.M.Haris, R.A.Rahman, A.M.Omar, R.A.H.A.Kadir, L.Rimon, A.R.Ghazali, K.S.Muhammad, Z.M.Darus, Z.M.Zain, **H.Zainuddin**, S.I. Sulaiman and S.Shaari. The Photovoltaic Monitoring Centre Portal: from Inception to Development and Maintenance. 9th SENVAR + 2nd ISESEE 2008 humanity + technology, 1-3 December 2008, Proceedings, pg 519-526

[3] S.Shaari, A.M.Omar, H.C.M Haris, Z.M.Zain, **H. Zainuddin**, S.I.Sulaiman, K.S.Muhammad, M.Mustaffa, Z.M.Darus, W.F.Abbas, R.A.H.A. Kadir, L.Rimon, P.Mazlan and A.R.Ghazali " Applying Renewable Energy Technology in Malaysia: Case Study for Building Integrated Photovoltaics " 9th SENVAR + 2nd ISESEE 2008 humanity + technology, 1-3 December 2008, Proceedings, pg 553-562

PUBLICATION FOR 2006

[1] **Hedzlin Zainuddin**, Asiah Mohd Nor, Samirah Abdul Rahman, and A. Z. Ahmed, "Thermal Comfort in Classrooms: A Case Study in Tropical Climate," in *Symposium & Exhibition on Sustainable Energy & Environment (ISESEE 2006)*, 2006, pp. 129-138.

PUBLICATION FOR 2005

[1] **Hedzlin Zainuddin**, Asiah Mohd Nor, Samirah Abdul Rahman, and A. Z. Ahmed, "Preliminary Investigation on CO and CO_2 Levels in Secondary School Classrooms in Shah Alam," in *National Seminar on Energy in Buildings (NSEB2005)*, 2005, pp. 10-11.

PUBLICATION FOR 2003

[1] Kamaruzzaman Sopian, **Hedzlin Zainuddin**, Mohd Yusof Othman, and B. Yatim, "Performance Analysis and Economic Analysis of a Grid-Connected Photovoltaic System," in *3rd International Conference on Advances in Strategic Technologies*, Kuala Lumpur, 2003, pp. 981-986.

PUBLICATION FOR 2001

[1] K.Sopian, **H. Zainuddin**, B. Yatim, and M.Y.Othman, "Performance Analysis of a Grid-Connected Systems for Residential Application," *Journal of Industrial Technology*, vol. 10, pp. 47-57, 2001.