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Zulkarnain Hassan. *Ph.D (Civil Eng., UTM)*
Senior Lecturer,
Faculty of Civil Engineering Technology,
Universiti Malaysia Perlis.



Research interests: hydrology and water resources; artificial intelligence; optimization; climate change; and risk and uncertainty analysis

CURRICULUM VITAE

1.0 PERSONAL/ CONTACT INFORMATION

Name: Zulkarnain Bin Hj. Hassan
Gender: Male
Marital Status: Married
Date of Birth: 6th May 1987
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2.0 ACADEMIC QUALIFICATIONS

- **Ph.D. (Civil Eng.)**, Universiti Teknologi Malaysia (UTM) (2012-2016). Streamflow optimization using statistical downscaling and analytical probabilistic models under climate scenarios (Supervisors: Prof. Dr. Supiah Shamsudin & Prof. Dr. Sobri Harun).
- **M.Eng. (Civil – Hydrology and Water Resources)**, UTM (2010-2012). Climate change impact on precipitation and streamflow in a humid tropical watershed (Supervisor: Prof Dr. Sobri Harun).
- **B.Eng. (Civil)**, UTM (2006-2010). (CGPA: 3.42)

3.0 WORKING EXPERIENCES

- **Senior Lecturer**, Faculty of Civil Engineering Technology, UniMAP. 15th Sep 2020 – To date.
- **Senior Lecturer**, School of Environmental Engineering, UniMAP. 20th Jan 2016 – 14th Sep 2020.
- **SLAB Fellowship**, School of Environmental Engineering, UniMAP. 29th Sept 2013 – 29th Feb 2016.
- **Research student grant**, Faculty of Civil Eng., Universiti Teknologi Malaysia (UTM). Title: Application of a genetic algorithm model for the optimization of stormwater extend detention pond design in a catchment system (Ref. No.: Q.K130000.2639.07J28). 2013.

- **Research Assistance**, Faculty of Civil Eng., UTM. Title: Development of a multi-objective stormwater extended detention pond model for urban catchment system (Ref. No.: 06-01-06-SF0983). 2012.
- **Research student grant**, Faculty of Civil Eng., UTM. Title: Development of impact simulation models with adaptation to climate change on Kerian, Muda, and Sungai Besar Irrigation Scheme (Ref. No.: 79385). 2010-2011.

4.0 PROFESSIONAL MEMBERSHIPS

- Malaysian Hydrological Society (2014), Lifetime (Member No. 420).
- Board of Engineering Malaysia (2013), Graduate Engineering (Member No. 86139A).
- The International Association of Hydrological Sciences (IAH) (2013), Membership (Member No. 2851)

5.0 AWARD AND ACHIEVEMENTS

- Third Place (Management) for 15th Public University Convention Innovative & Creative Team (KIK), Universiti Teknikal Malaysia Melaka (UTeM), 20-21th August 2019. (Reward, RM3,000 and Gold Award).
- First Place (Management) for Mini Convention Innovative & Creative Team (KIK), Dewan Kecemerlangan Universiti Malaysia Perlis, 24 April 2019. (Reward, RM1,000).
- Blended Learning Course Recognition for Fluid Mechanics Engineering (EAT 252), Universiti Malaysia Perlis (2018/2019 Sem 1)
- Skim Latihan Akademik IPTA (SLAI) Scholarship, Ministry of Education Malaysia, 9th Sept 2013 – 29th Feb 2016 (for PhD. in Civil)
- Silver medal for the best MSc thesis in the Malaysia-level World Water, UNESCO-Malaysia International Programme (UNESCO-IHP Malaysia) and Department of Irrigation and Drainage (DID) Malaysia, 2013, National.
- Universiti Teknologi Malaysia Zamalah Master Scholarship, Universiti Teknologi Malaysia, 1st Aug 2010 -30th Nov 2010.
- Public Services Commissions of Malaysia Scholarship, Public Services Commissions of Malaysia, 2007- 2010.
- Dean list, Faculty of Civil Engineering, Sem 2 2006/2007 and Sem 1 2008/2009.

6.0 ACADEMIC/ TEACHING EXPERIENCE

6.1 Teaching at Undergraduate Level (UniMAP)

- Fluid Mechanics Engineering
- Hydrology
- Hydraulics
- Urban Stormwater Management

7.0 PUBLICATIONS

7.1 Referred-Journals

- **Zulkarnain Hassan** (2020). An Integration Based Optimization Approach (ABC and PSO) for Parameter Estimation in BLRP Model for Disaggregating Daily Rainfall. *Pertanika J. Sci. & Technol.* 28 (1), 385-402. **SCOPUS**
- **Zulkarnain Hassan**, Supiah Shamsudin and Sobri Harun (2015). Choosing a fitted distribution model for rainfall event characteristics based on 6H-IETD within Peninsular Malaysia. *Jurnal Teknologi (Sciences and Engineering)*, 75 (1), 145–157. **SCOPUS**
- **Zulkarnain Hassan**, Supiah Shamsudin, Sobri Harun, Marlinda Abdul Malek, and Nuramidah Hamidon (2015). Suitability of ANN applied as a hydrological model coupled with statistical downscaling model: A case study in the northern area of Peninsular Malaysia. *Environmental Earth Sciences*, 74(1), 463-477. **ISI-WOS Q2 (IF 2014 = 1.765)**
- **Zulkarnain Hassan**, Supiah Shamsudin and Sobri Harun (2014) Minimum input variances for modelling rainfall-runoff using ANN. *Jurnal Teknologi (Sciences and Engineering)*, 69(3), 113-118. **SCOPUS**
- **Zulkarnain Hassan**, Supiah Shamsudin and Sobri Harun (2014). Application of SDSM and LARS-WG for simulating and downscaling of rainfall and temperature. *Theoretical and Applied Climatology*, 116(1-2), 243–257. **ISI-WOS Q2 (IF 2012 = 2.015)**

7.2 Non-Refereed-Journals

- **Zulkarnain Hassan**, Mohd Faez Mohd Mansor, and Ain Nihla Kamarudzaman. (2020). Rainfall projection corresponding to climate scenarios based on Statistical Down-Scaling Model over Perlis, Malaysia. *Journal of Engineering Research and Education*, 11, 9-14.
- Mustaqqim Abdul Rahim, Omi Yanti Pohan, Mohd Badrul Hisyam Ab Manaf, Ahmad Nur Aizat Ahmad, Shahiron Shahidan, Zuhayr Md. Ghazaly, Nor Faizah Bawadi, Shamilah Anudai@Anuar, **Zulkarnain Hassan**, Zul-Atfi Ismail, and Teoh Jun Hong (2018). Characteristics of Steel Fiber Reinforced Concrete With Recycled Coarse Aggregate. *Journal of Civil Engineering, Science and Technology*, 9(2), 70-75.
- Zuhayr Md Ghazaly, Muhammed Z. A Melhem, Mustaqqim Abdul Rahim, Zul-Atfi Ismail, Mohd Faiz Mohammad Zaki, **Zulkarnain Hassan**, Nur Fitriah Isa, Nadhirah Mohd Zambri (2018). Deformation Characteristics of Lime Stabilized Peat Soil using Finite Element Method. *International Journal of Management and Applied Science (IJMAS)*, 6(2), 48-52.
- **Zulkarnain Hassan** and Sobri Harun (2013). Impact of climate change on rainfall over Kerian, Malaysia with Long Ashton Research Station Weather Generator (LARS-WG). *Malaysian Journal of Civil Engineering*, 25(1): 33-44. ISSN 1823-7843.
- **Zulkarnain Hassan** and Sobri Harun (2012). Application of statistical downscaling model for long lead rainfall prediction in Kurau River catchment of Malaysia. *Malaysian Journal of Civil Engineering*, 24(1):1-12. ISSN 1823-7843.
- **Zulkarnain Hassan**, Sobri Harun, and Marlinda Abdul Malek (2012). Application of ANNs model with the SDSM for the hydrological trend prediction in the sub-catchment of Kurau River, Malaysia. *Journal of Environmental Science and Engineering B*, 1: 577-585. ISSN 2162-5263.

7.3 Proceeding Papers

- A Nazirah, W O Wan Mohd Sabki, **Hassan, Z.** and A Afizah (2021). Simulation of Runoff using HEC-HMS for Ungauged Catchment. AIP Conference Proceedings, 2347, 020276. DOI: <https://doi.org/10.1063/5.0051957> **SCOPUS**
- Afizah Ayob, Norashikin Razali, **Zulkarnain Hassan**, Mustaqqim Abdul Rahim and Mohd Zulham Affandi bin Mohd Zahid (2021). Carbon Footprint Assessment of Hostel Building Construction Using the Industrialized Building System In Pauh Putra, Perlis. Journal of Physics: Conference Series, 1793(1), 012035. DOI: 10.1088/1742-6596/1793/1/012035 **SCOPUS**
- M Z M Salwa, A S N Amirah, A W Mahyun, **Z Hassan** and Norsyazwani Che Mohamed (2021). Removal of COD from landfill leachate using Moringa oleifera. IOP Conf. Ser.: Earth Environ. Sci. 646 012019. DOI: 10.1088/1755-1315/646/1/012019 **SCOPUS**
- V Y T Karen, A N Kamarudzaman, M F Ab Jalil, **Z Hassan**, A.W. Mahyun, M.Z.M. Salwa and A.S.N Amirah (2021). Assessment of drinking water quality for raw water and treated water at Kangar, Perlis, Malaysia. IOP Conf. Ser.: Earth Environ. Sci. 646 012011. DOI: 10.1088/1755-1315/646/1/012011 **SCOPUS**
- A W Mahyun, Kar-Kei Chua, M.Z.M Salwa, Noramirah Abu Seman, **Zulkarnain Hassan** and Ain Nihla Kamarudzaman(2021). Derivation of Z-R relationship parameter for Alor Setar radar using Traditional Matching Method (TMM). IOP Conf. Ser.: Earth Environ. Sci., 646, 012043. DOI: 10.1088/1755-1315/646/1/012043 **SCOPUS**
- Salwa Zaini Makhtar, A S N Amirah, Mahyun Ab Wahab, **Zulkarnain Hassan** and Salah Hamid (2021). Study of environmental awareness, practices and behaviours among UniMAP students. IOP Conf. Ser.: Earth Environ. Sci. 646 012061. DOI: 10.1088/1755-1315/646/1/012061 **SCOPUS**
- Muhammad Zahran Syahmi Armain, **Zulkarnain Hassan**, Mohd Remy Rozainy Mohd Arif Zainol, Sobri Harun, Mahyun A. W., Salwa M. Z. M., Ain Nihla Kamarudzaman, and Nor Amirah Abu Seman (2021). Development of rainfall-runoff modelling using the HEC-HMS at the catchment of Kelantan River, Malaysia. IOP Conf. Ser.: Earth Environ. Sci., 646, 012046. DOI: 10.1088/1755-1315/646/1/012046 **SCOPUS**
- Muhammad Zahran Syahmi Armain, **Zulkarnain Hassan**, and Sobri Harun (2021). Climate change impact under CANESM2 on future rainfall in the state of Kelantan using Artificial Neural Network. IOP Conf. Ser.: Earth Environ. Sci., 646, 012033. DOI: 10.1088/1755-1315/646/1/012033 **SCOPUS**
- **Zulkarnain Hassan**, Siti Zulaiha Rosdi, Ain Nihla Kamarudzaman, Mustaqqim Abdul Rahim, and Zuhayr Md. Ghazaly (2019). Comparison of Artificial Neural Network and Support Vector Machine for Long-Term Runoff Simulation. IOP Conference Series: Earth and Environmental Science, 476(2020), 012119. DOI: 10.1088/1755-1315/476/1/012119 **SCOPUS**
- Mustaqqim, A. R., Kee, K. M., Aizat, A. A. N., Afizah, A., Zuhayr, M. G., Shahiron, S., ... & **Zulkarnain, H.** (2019, July). The effect of fire to the compressive strength of concrete containing recycle plastic aggregate (RPA). In AIP Conference Proceedings (Vol. 2129, No. 1, p. 020047). AIP Publishing. **SCOPUS**
- **Zulkarnain Hassan**, Ahmad Haidir, Farah Naemah Mohd Saad, Afizah Ayob, Mustaqqim Abdul Rahim, and Zuhayr Md. Ghazaly. (2018). Spatial Interpolation of Historical Seasonal Rainfall Indices over Peninsular Malaysia. E3S Web Conf., 34, 02048. DOI: 10.1051/e3sconf/20183402048 **SCOPUS**

- Mustaqqim Abdul Rahim, Lum Chui Ying, Shahiron Shahidan, Zuhayr Md. Ghazaly, Shamilah Anudai@Anuar, Nor Faizah Bawadi, Nur Fitriah Isa, **Zulkarnain Hassan**, Afifuddin Habulat, and Zul-Atfi Ismail (2017). Design Reinforced Concrete Structures: Differences in Procedure, Formula, and Results between Eurocode 2 and British Standard 8110. AIP Conference Proceedings 1885, 020173 (2017); DOI: 10.1063/1.5002367 **SCOPUS**
- Zuhayr Md Ghazaly, Mustaqqim Abdul Rahim, Mohamad Amzar Bin Mhd Nasir, Nur Fitriah Isa, Mohd Faiz Mohammad Zaki, **Zulkarnain Hassan**, and Zul-Atfi Bin Ismail (2017). Potential of soil liquefaction at Perlis, northern region of Malaysia. AIP Conference Proceedings 1885, 020171 (2017); DOI: 10.1063/1.5002365 **SCOPUS**
- **Zulkarnain Hassan**., Supiah Shamsudin and Sobri Harun (2013). Runoff modelling in Northern Peninsular Malaysia using ANN. In: Proceeding of The 4th International Graduate Conference on Engineering Science & Humanity 2013 (IGCESH2013). April 16-17. Skudai: Universiti Teknologi Malaysia pp.434-439. ISSN: 1823-3287.
- **Zulkarnain Hassan** and Sobri Harun (2011). Hydrological response of a catchment to climate change in the Kurau River basin, Perak, Malaysia. In: Proceeding of the 3rd International Conference on Managing Rivers in the 21st Century: Sustainable Solutions for Global Crisis of Flooding, Pollution and Water Scarcity (River 2011). Dec 6-9. Shangri-La's Rasa Sayang Resort and Spa, Penang: Universiti Sains Malaysia, pp.216–225. ISBN 978-983-3067-35-0.
- **Zulkarnain Hassan** and Sobri Harun (2011). Development climate change scenarios of rainfall and temperature using a stochastic weather generator. In: Proceeding of the Seminar Kejuruteraan Awam 2011 (SEPKA 2011). Sept 13-15. Skudai: Universiti Teknologi Malaysia. ISBN 978-967-0194-05-9.
- **Zulkarnain Hassan** and Sobri Harun (2011).Statistical downscaling for climate change scenarios of rainfall and temperature. In: Proceeding of the United Kingdom-Malaysia-Ireland Engineering Science Conference 2011 (UMIES 2011). Jul 12-14. Kuala Lumpur: Universiti Malaya.

7.4 Newspaper

- **Zulkarnain Hassan** (2021). Bencana Banjir di Yan, Kedah : Salah Siapa? (Online). Tinta Minda - BERNAMA. Available at <https://web15.bernama.com/bm/tintaminda/news.php?id=1995899>

7.5 Under-review Papers

- Muhammad Zahran Syahmi Armain, **Zulkarnain Hassan**, Mohd Remy Rozainy Mohd Arif Zainol, Sobri Harun, Ain Nihla Kamarudzama, and Salwa Mohd Zaini Makhtar. Analysing Impact of Climate Change on Hydrological Trend in Kelantan River Basin using HEC-HMS Coupled with SDSM. Submitted to ICWR2021. (**Non-Indexed Proceeding**)
- Muhammad Zahran Syahmi Armain, **Zulkarnain Hassan**, Mohd Remy Rozainy Mohd Arif Zainol, Ain Nihla Kamarudzama. Hydrodynamic Modelling of Historical Flood Event using One Dimensional HEC-RAS in Kelantan Basin, Malaysia. Submitted to CENVIRON2021.(**Scopus Proceeding**)
- **Zulkarnain Hassan**, Sobri Harun, Muhammad Zahran Syahmi Armain, and Noradila Ruslik (2021). Preliminary investigation on historical flood events using the HEC-HMS hydrological modelling for Kelantan River Catchment. Submitted to Int. J. of Hydrology Science and Technology (Accepted on 4th Dec 2020) (**Scopus**)

8.0 RESEARCH GRANT

- Leader of UniMAP University-Private Matching Fund (UniPRIMA) award by Universiti Malaysia Perlis on Study on Perlis State Park as Forest Water Catchment for Continuous Water Inflow to the Tima Tasoh Reservoir. 15th Sep 2021 - 14 Sep 2023 (RM 20,000). **On-going.**
- Leader of **Fundamental Research Grant Scheme (FRGS) 2019** award by Ministry of Education Malaysia on **A New Approach of Coupled Hydrologic-Hydrodynamic and Climate Change Modelling in Simulating Flood Hazard Risk**. 1st Sep 2019 until 1st Sep 2021 (RM74,700). (Ref: FRGS/1/2019/TK01/UNIMAP/02/4). **On-going.**
- Member of **Fundamental Research Grant Scheme (FRGS) 2019** award by Ministry of Education Malaysia on “**A Climate Change study to Enhanced the Optimum Future Reservoir Performance with the aid of Artificial Intelligence**”. 1st Sep 2019 until 1st Sep 2021 (RM89,000). (Leader of the grand, Dr. Nuramidah Binti Hamidon - UTHM). (Ref: FRGS/1/2019/TK01/UTHM/03/2) **On-going**
- Member of Project Grant award by **Kulim Hi-Tech.**, Kedah on Source Identifying and Modelling of Total Organic Carbon in Sungai Muda Catchment, Kedah. 1st January 2017 until 31st December 2018 (RM241,000) (Conducted by UniMAP KTPC and WAREG). **Completed**
- Member of **UniMAP Short-Term Grant on Research and Development on Hydrodynamic Modelling of Flood Mitigation**. 19 Dec 2016 until 18 Dec 2017 (RM 20,000) (Leader of the grant, Dr. Wan Mohd Sabki Wan Omar) (Ref. No.: 9001-00546) **Completed**

9.0 ACADEMIC SUPERVISION

9.1 Ph.D Candidate

- Yunita Pane (co-supervisor). Content of heavy metals in river flow sediments towards Belawan waters region from a distance of 10 m on the sea edge.
- Nazirah Binti Azizat (co-supervisor). Assessment of flood hazard: A case study of Perlis (2017 – on-going).

9.2 Master by Research

- Muhammad Zahran Syahmi bin Armain (main supervisor). A new approach of coupled hydrologic-hydrodynamic and climate change modelling in simulating flood hazard risk. **Starting Jan 2020 & expected finish Dec 2021** (under FRGS-2019).

10.0 POSTGRADUATE EXAMINATION

10.1 Examination – Proposal Defend/Pre-Viva (Internal)

- Examiner of **Ph.D Pre-Viva** by Nur Izzah Binti Mohamad Hashim (Ph.D in Environmental Eng.), “Prediction of Maximum Daily Ground-Level Ozone Concentration in Malaysia Urbanized Area using Predictive Modeling Technique” in Online Session. 10th February 2021.
- Examiner of **Ph.D Proposal Defend** by Mohd Fauzie bin Jusoh (Ph.D in Bio-System Eng.), “Improvement and Optimization of Irrigation Scheduling Based on Load Cell Threshold Correlated to Root Zone Moisture of Hanging Melon Drip Irrigation System” in Online Session. 26th January 2021. Pass
- Examiner of **PhD Pre-Viva** by Ramzi Ameen Hussein Almaaitah (Ph.D in Environmental Eng.), “The Spital Distribution of Soil Erosion in Karak Plateau by Integration of Swat & Rusle using GIS and Remote Sensing Techniques” in Bilik Mesyuarat PPK Alam Sekitar, UniMAP. 9th August 2019. Pass.
- Examiner of **MSc Proposal Defend** by Ahmed Eshteewi Miftah Alriaaid (M.Sc. in Building Eng.), “Comparison of Asphalt Pavement Distresses in Arterial Roads and Collector Roads” in Multi-Purpose Lab, UniMAP PPKAS. 7th August 2019. Pass.
- Examiner of **M.Sc. Proposal Defend** by Nasr Abdullah Nasr Abdulrahman (M.Sc. in Civil Eng.) in RK07 Fail Room, PPK Alam Sekitar, UniMAP. 13th March 2019.
- Examiner of **M.Sc. Proposal Defend** by Edward Baran Anak Aeries (M.Sc.(Biosystem Eng.) candidate) in Bilik Viva Dragon, PPK Bioproses. 19th Feb. 2019..
- Examiner of **Ph.D. Proposal Defend** by Shahrul Azwan Shakrani (Ph.D. candidate) in Bilik Mesyuarat Dragon, PPK Alam Sekitar, UniMAP. 2018.

11.0 CONSULTANCY

- “Projek Menaiktaraf Sistem Saliran Pertanian Bukit Tambun, Pulau Pinang” and “Projek Kajian Mengatasi Masalah Banjir di Taman Wira Teluk Air Tawar, Seberang Perai Utara, Pulau Pinang” (ARMI/UNIMAP/220/1), 29th Sep - 31st Dis 2020. Perunding Kejuruteraan Armi. (As **data analysis, hydrology modeller, and flood management**). **PE Experience & Completed**
- Projek tebatan banjir Sg. Jelutong Diversion (Bawah Tanah) di Jalan Tengku, Persimpangan Jalan Jelutong dan Solok Perak, Jelutong, Daerah Timur Laut, Pulau Pinang (JPS/N/PP/PB/11/2017), 2019. Award by Department of Irrigation & Drainage Penang to Syarikat Perunding MPA. (As **Hydraulic Modeler**) **PE Experience & Completed**
- Kajian pelan induk tebatan banjir & peta hazard banjir lembangan Sungai Perak, Perak (First Phase), 2018. Award by Department of Irrigation & Drainage of Malaysia to RBM Consultation. (as **Hydraulic Modeler**) **Completed**
- **Inspector** represents Jabatan Pembangunan UniMAP for the PFI2 Kampus Pauh Putra UniMAP project (4th Session), 26th – 27th January 2016. **Completed**
- Team member of the preparation of the research proposal on Toc level in Sungai Muda, Kedah. Prepared for KTCU, Kulim Hi-Tech. **PE Experience & Completed**
- Inspector represents Jabatan Pembangunan UniMAP for the PFI2 Kampus Pauh Putra UniMAP project (3rd Session), 9th – 10th November 2016. **Completed**
- Inspector represents Jabatan Pembangunan UniMAP for the PFI2 Kampus Pauh Putra UniMAP project (2nd Session), 1st – 2nd September 2016. **Completed**

12.0 ACADEMIC ACTIVITIES

12.1 International

- International Conference on Civil and Environmental (Special Issue on Water)(CENVIRON 2020) (Organized by Universiti Malaysia Perlis), 18-19th November 2020, International, **Promotion Committee**.
- The 5th International Innovation, Design and Articulation (i-IDeA 2020), 9th -11st June 2019, International, **Promotion Committee**
- 2nd of International Conference on Civil and Environmental Engineering (CENVIRON 2019) (Organized by Universiti Malaysia Perlis), 20-21st November 2019, International, **Promotion Committee**.
- 4th International Conference on Water Resources (ICWR-2018) (Organized by Universiti Teknologi Malaysia), 27-28th November 2018, International, **Technical Committee** on Hydrology and Water Resources.
- The 4th International Innovation, Design and Articulation (i-IDeA), 24-26th April 2018, International, **Promotion Committee**
- International Conference on Civil and Environmental Engineering (CENVIRON 2017) (Organized by Universiti Malaysia Perlis), 28-29th November 2017, International, **Executive Committee**.

12.2 National

- Jemputan sebagai **Penceramah** Program Sesi Perkongsian Ilmu: Pembelajaran Berasaskan Hasil (OBE) di Kolej Komuniti Langkawi pada 4hb November 2019. National (Ref: KKLK/P/500-9/16 JLD.3(100)).
- Jemputan sebagai **Panel Penasihat Industri** bagi “Mesyuarat Bersama Panel Penasihat Industri (IAP) & Bangkel Penilaian Akademik Jabatan Kejuruteraan Awam” di Politeknik Sultan Idris Shah pada 1 Ogos 2019. National (Ref: PSIS/600-1/1 JILID 7(4)).
- Jemputan sebagai **Juri** bagi program “Geomatics Research, Innovation & Competition 2018 (GRIC2018)” di UiTM Kampus Arau, Cawangan Perlis pada 18 Julai 2017. National. (Ref: 100 - UiTMPS (PPSUGIGRIC2018/J-6))
- Jemputan sebagai **Panel Penilai** bagi seminar perbentangan dan pameran projek pelajar Ijazah Sarjana Muda Teknologi Kejuruteraan Awam dengan Kepujian, di Politeknik Tengku Omar (PUO), Ipoh pada 5hb Jun 2018
- Jemputan sebagai **Juri** bagi program “Geomatics Research, Innovation & Competition 2017 (GRIC2017)” di UiTM Kampus Arau, Cawangan Perlis pada 21 Disember 2017. National. (Ref: 100 - UiTMPS (PPSUG/GRIC?017IJ-7))
- Jemputan sebagai **panel penilai** Projek Semesta Akhir di Politeknik Sultan Idris Shah, Selangor, 28th September 2017. National. (Ref: PSIS/02/01/01/11-1 JLD 10 ())
- Perlantikan sebagai **fasilitator** Bangkel Semakan Kurikulum Diploma Kejuruteraan Alam Sekitar dan Diploma Kejuruteraan Alam Sekitar (Air & Air Sisa) di Politeknik Sultan Idris Shah, Selangor. 27-28 September 2017. National. (Ref: PSIS/02/01/01/8 Jld.11(38))
- National Science Challenge 2017 (Perlis State), 13th July 2017, State, **Organizing Committee**.

12.3 University

- Jawatankuasa kecil Ijazah Tinggi Pusat Pengajian Kejuruteraan Alam Sekitar (JKIT – PPKAS), 1st March 2019 – 28th February 2021, University, **Invited Member**.
- Perlantikan sebagai **ahli jawatankuasa promosi university** (UniMAP), 1st Jan 2019 – 31st Dec 2020.
- Jawatankuasa kecil Ijazah Tinggi Pusat Pengajian Kejuruteraan Alam Sekitar (JKIT – PPKAS), 3rd April 2017 – 28th February 2019, University, **Invited Member**.
- **Pegawai Penerima Aset Inventori** bagi Pusat Pengajian Kej. Alam Sekitar, UniMAP, 25 November – 31st December 2016.
- Jawatankuasa Akreditasi bagi Program RK01, 1st January – 31st December 2016, **Member**.
- Satun-Perlis Tunnel Talk 2016, 26th May 2016, International (Thailand-Malaysia), **Chairman**.

12.4 CSR Activities

- Program Cakna Siswa ‘Jalinan Kasih, Tautan Budi’, Bandar Tasek Mutiara, Seberang Perai Selatan, Pulau Pinang, 26th – 28th April 2019, **Urus setia**.

13.0 REVIEW ACTIVITIES (JOURNAL & CONFERENCE)

Details: <https://publons.com/researcher/1316243/zulkarnain-hassan/peer-review/>