

ISSUE

JUNE 2019

IVAT

the abbreviated name for the Institute of High Voltage and High Current, or in Malay, Institut Voltan dan Arus Tinggi – a Centre of Excellence of Universiti Teknologi Malaysia (UTM).

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IVAT Organises Public Lecture on Lightning



Group photo during public lecture on lightning.

OHOR BAHRU, 22 November 2018 - The Institute of High Voltage and High Current (IVAT) successfully organised the Public Lecture on Lightning delivered by Prof. Dr. Zen Kawasaki on 22 November 2018. The lecture centred on the atmospheric activity trends that can be observed by lightning emanated electromagnetic fields - an indication of the energy conserved in the atmosphere and its correlation with other weather parameters. With this, the effects of global warming and increasing lightning activity in terms of its intensity and occurrence rate can be observed.

(continued on page 3...)

IVAT Visits Malaysia Transformer Manufacturing



Group photo at Malaysia Transformer Manufacturing.

JOHOR BAHRU, 27 March 2019 – A one-day visit to Malaysia Transformer Manufacturing (MTM) Sdn. Bhd. in Ulu Kelang, Selangor, was held on the 27th March 2019 by the academic, laboratory and management staff of IVAT. The staff departed from IVAT at about 7.30 a.m.

and safely arrived MTM Ulu Kelang approximately 5 hours later. They were greeted by Mr. Muain, MTM's representative, and were given short briefing on the company by Mr. Shahril.

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IVAT Director's Remarks



Prof. Dr. Zulkurnain Abdul Malek, Director, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.

I am pleased to present to you the new edition of our annual IVAT Newsletter. Indeed, 2018 and 2019 have been very busy years for IVAT with numerous activities and happenings. We had the honour of hosting and doing collaborative work with Professor Zen Kawasaki of Rairan Pte. Ltd., currently based in Singapore, on lightning warning system, which we hope will be a major achievement of IVAT in 2019. We are also busy preparing for the International Conference on the Properties and Applications of Dielectric Materials (ICPADM), which will be held in Johor Bahru in 2021. Other activities such as short courses, industrial visits, industrial collaborations and student/community services are also being carried out actively. We look forward to more exciting events and happenings in the coming year.

IVAT's Monthly Talk

JOHOR BAHRU, 20 March 2019 – A talk by Prof. Dr. Zulkurnain Abdul Malek was successfully delivered on 20th March 2019 at the Institute of High Voltage and High Current's (IVAT) Seminar Room. The talk entitled 'Lightning Protection and Grounding – An Overview' was part of the institute's plan for 2019 to encourage knowledge transfer among IVAT's staff, students and public. The 2 hour-talk began at 3.00 p.m., with registration from participants, and ended at 5.00 p.m. About 20 participants joined the talk, with majority of them being IVAT's staff and postgraduate students. It is hoped that the talk benefited all participants with the updated knowledge and information on lightning protection systems.

Dr. Noor Azlinda Ahmad, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.

Editorial Board

Advisor: Prof. Dr. Zulkurnain Abdul Malek

Editor-in-chief: Prof. Dr. Zolkafle Buntat

Editor & Designer: Ir. Dr. Lau Kwan Yiew

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Group photo.

Prof. Dr. Zen on Impact of Lightning on Global Warming

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During the lecture, Prof. Dr.Zen shared the details on the effect of lightning activity to whole atmospheric system. He noted that there was a possibility of the lightning activity itself helped in the process of global warming in starting natural





Prof. Dr. Zen delivering his lecture.

wildfires, but at the same time produced ozone gas from nitrates in the atmosphere. Depending on which activity occurred at a higher rate, higher impact of global warming



would occur if wildfires were at a higher rate than ozone production that helped to block ultraviolet (UV) rays. Therefore, lightning research community needs to have an aim to answer this hypothetical question.

Prof. Dr. Zen's current contribution is his experimental setup named BOLT, i.e., the magnetic field (B) Observation of Lightning and Thunderstorm, which consists of several antennas sensing the magnetic field signatures of atmospheric lightning activity and uses the interferometry to locate the source and intensity of the lightning by triangulation. By continuously logging and inferencing lightning data, the impact of lightning on global warming can be further described. This knowledge is important to humanity as the awareness of climate change can be observed. However, the efforts to lessen the impact is still in vain.



Prof. Dr. Zen receiving a token of appreciation from the Director of IVAT, Prof. Dr. Zulkurnain Abdul Malek.

The lecture was extended to a Question and Answer session whereby Prof. Dr. Zen's wisdom managed to serve the technical question posed by researchers from IVAT, Tenaga Nasional Berhad (TNB) and other private institutions. IVAT wishes to extend its highest gratitude

> to Prof. Dr. Zen for this sharing session, and in enlightening researchers on the impact of lightning on the atmospheric electrical systems in the atmosphere and above.

> # Dr. Zuraimy Adzis Institute of High Voltage and High Current, Universiti Teknologi Malaysia.

Another group photo.

IVAT Organises Short Course on Partial Discharge

NILAI, 12 December 2018 – A Short Course on Partial Discharge has been successfully organised by IVAT for High Voltage Test Lab (HVTL) Sdn. Bhd.. The short course has been delivered by Dr. Mohd Hafizi Ahmad, IVAT's Head of Discharges, Dielectrics and Diagnostics Division, and Dr. Aulia from Andalas University. The short course was attended by 15 attendees from HVTL Sdn. Bhd. and EPE Switchgear (M) Sdn. Bhd. The short course has solely focused on the fundamental aspects of partial discharge including understanding of the partial discharge mechanisms, types, causes, models and international standards related to partial discharge. Also, vast emphasis has been paid on the off-line partial discharge measurement method according to conventional method as stated in IEC 60270 standard. In addition, the fundamental and application of the on-line partial discharge detection and measurement have been explained thoroughly during the short course as related to IEC TS 62478. The

course also included the basic understanding of acoustic and electromagnetic waves concepts in relation to partial discharge. Moreover, the participants have been exposed to the online partial discharge measurement methods on transformer, switchgear, rotating machines, cable termination, and switchyards with some related case studies. Finally, other aspects such as internet-of-things in relation to partial discharge monitoring have been introduced as well. The course ended with Questions and Answers session where the participants raised some issues related to their works in connection with partial discharge. Last but not least, IVAT would like to express sincere thanks to HVTL Sdn. Bhd. and EPE Switchgear (M) Sdn. Bhd. for inviting IVAT to organise the short course.

Dr. Mohd Hafizi Ahmad, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Participants of the short course from HVTL Sdn. Bhd. and EPE Switchgear (M) Sdn Bhd. Also present was Managing Director of EPE Switchgear (M) Sdn. Bhd., Ir. Nazary Ahmad (fourth from left), during the closing ceremony.

IVAT's 2018 Hari Raya Celebration

JOHOR BAHRU, 28 June 2018 - On 28 June 2018, IVAT organised a Hari Raya Celebration. All IVAT's staff, staff of the Faculty of Electrical Engineering, staff of the Office of Deputy Vice Chancellor (Research and Innovation), staff of the Institute for Oil and Gas (IFOG) and IVAT's postgraduate students were invited to the event. Additionally, IVAT also invited its commercial customers to the event. The purpose of the Hari Raya Celebration was to foster relationships between IVAT's staff and other officers.

Mr. Abd. Mohsin Abd. Razak, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Hari Raya celebration at IVAT.

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Laboratory Visit by Undergraduate Students at IVAT

OHOR BAHRU, 11 March 2019 – On 11 March 2019, with UTM's initiative to promote teaching-research nexus undergraduate students of Universiti Teknologi Malaysia among the students to ensure that teaching and learning (UTM) undertaking the course "High Voltage Technology" activities of the students are enhanced through research had the chance to visit the high voltage laboratory of the experience. Institute of High Voltage and High Current, UTM. During # Ir. Dr. Lau Kwan Yiew, Institute of High Voltage and High Current, Universiti the visit, the students had a tour around the laboratory to Teknologi Malaysia. know better about practical high voltage equipment, such as the impulse generator, AC/DC generator, transformer and switchgear. The importance of high voltage insulation was also conveyed to the students through a laboratory demonstration of glass insulation flashover. In addition, the students were also briefed about safety concerning the use of high voltage laboratory.

The laboratory tour intended to enhance the students' in-class learning experience and pave the way for the students to begin their research-related assignments in the field of dielectrics and electrical insulation. This is in line





Group photo.

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Laboratory tour.

Laboratory safety briefing.

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IVAT Prepares for ICPADM 2021

KUALA LUMPUR, 18 January 2019 – The first committee meeting of the International Conference on the Properties and Applications of Dielectric Materials (ICPADM) 2021 was successfully held at Universiti Putra Malaysia (UPM) on 18 January 2019, in conjunction with the 2019 MyHVnet Annual General Meeting (AGM). The meeting was attended by committee members of ICPADM 2021 from different universities and industries across Malaysia.

The meeting began with opening remarks by Prof. Dr. Zulkurnain Abdul Malek of Universiti Teknologi Malaysia, the General Chair of ICPADM 2021, Prof. Dr. Zulkurnain then briefed the committee members on ICPADM, a fully sponsored conference by the Institute of Electrical and Electronics Engineers (IEEE) Dielectrics and Electrical Insulation Society (DEIS). The conference will be held in Malaysia in 2021 and as such, much work is currently being planned to ensure the success of the conference.

ICPADM is a conference combining research and application practice in dielectrics covering the general areas of electrical insulation in power equipment and cables, outdoor insulators and bushings, monitoring and diagnosis of insulation degradation, insulation for HVDC systems, ageing and life expectancy of insulation, dielectric phenomena and applications, partial discharges, electrical and water treeing and surface tracking, electrical conduction and breakdown in dielectrics, surface and interfacial phenomena, nano-technology and nano-dielectrics, space charge and its effects, new and functional dielectrics, dielectric materials for electronics and photonics, ecofriendly dielectrics, bio-dielectrics, dielectrics for superconducting applications, new diagnostic applications. During the committee meeting, expectations of ICPADM 2021, which were discussed with Dr. Harry Orton, the Chair of the International Advisory Committee of ICPADM, during his visit to Malaysia in August 2018, were highlighted to the committee members. This would ensure that the committee members had a good grasp of

ICPADM 2021 before embarking on their roles as committee members, as follows:

General Chair

- Prof. Dr. Zulkurnain Abdul Malek (Universiti Teknologi Malaysia) **General Secretary**
- Ir. Dr. Lau Kwan Yiew (Universiti Teknologi Malaysia) Finance Committee
- Dr. Mona Riza Mohd Esa (Universiti Teknologi Malaysia)
- Dr. Noor Azlinda Ahmad (Universiti Teknologi Malaysia)
- Technical Program Committee
- Assoc. Prof. Ir. Dr. Hazlee Azil Illias (Universiti Malaya)
- Assoc. Prof. Dr. Mohamed Afendi Mohamed Piah (Universiti Teknologi Malaysia)
- Ir. Dr. Nor Asiah Muhamad (Universiti Sains Malaysia)
- Publications and Local Arrangement Committee
- Prof. Ir. Dr. Mohd Zainal Abidin Ab Kadir (Universiti Putra Malay-
- Assoc. Prof. Dr. Azrul Mohd Ariffin (Universiti Tenaga Nasional)
- Assoc. Prof. Dr. Hidayat Zainuddin (Universiti Teknikal Malaysia Melaka)
- Assoc. Prof. Dr. Miszaina Osman (Universiti Tenaga Nasional)
- Assoc. Prof. Ir. Dr. Mohamad Kamarol Mohd Jamil (Universiti Sains Malaysia)
- Assoc. Prof. Dr. Mohd Taufig Ishak (Universiti Pertahanan Nasional Malaysia)
- Assoc. Prof. Ts. Dr. Muzamir Isa (Universiti Malaysia Perlis)
- Ir. Dr. Mohd Aizam Talib (TNB Research)
- Dr. Amir Izzani Mohamed (Universiti Malaysia Pahang)
- Dr. Mohd Hafizi Ahmad (Universiti Teknologi Malaysia)
- Dr. Norhafiz Azis (Universiti Putra Malaysia)
- Dr. Yanuar Zulardiansyah Arief (Universiti Malaysia Sarawak)
- Dr. Zulkarnain Ahmad Noorden (Universiti Teknologi Malaysia)
- Dr. Zuraimy Adzis (Universiti Teknologi Malaysia)

After actively discussing the arrangement of the conference and the role of each committee member, Prof. Dr. Zulkurnain adjourned the meeting, and thanked the committee members for their active participation during the meeting. More details to come.

Ir. Dr. Lau Kwan Yiew, Institute of High Voltage and High Current, Universiti Teknologi Malaysia (Republished from 2019 MyHVnet Newsletter).



Photo session with Dr. Harry Orton (third from left) at Universiti Teknologi Malaysia in August 2018.

High Voltage Seminar Successfully Held

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OHOR BAHRU, 18 April 2019 - The School of Electrical enrich the nexus between research, learning and teaching. Engineering (SKE), Universiti Teknologi Malaysia (UTM), in Course Coordinator Dr. Noor Azlinda Ahmad and Semicollaboration with the IEEE Dielectrics and Electrical Insulanar Coordinator Ir. Dr. Lau Kwan Yiew sincerely thank tion Society (DEIS) Malaysia Chapter, successfully organised Ms. Hidayah for voluntarily delivering the seminar to the High Voltage Seminar on 18 April 2019 at SKE, UTM Johor students. Bahru. About 100 undergraduate students undertaking the # Ir. Dr. Lau Kwan Yiew, Institute of High Voltage and High Current, Universi-High Voltage Technology course attended the seminar delivti Teknologi Malaysia. ered by Ms. Nor Hidayah Rahim, a PhD candidate of the Institute of High Voltage and High Current (IVAT), UTM. Various interesting insights on dielectrics and electrical insulation, especially those related to nanodielectrics, were delivered by Ms. Hidayah during the seminar. Ms. Hidayah also shared with the students about research life at IVAT, high voltage research activities carried out at IVAT, and potential research areas that ones can explore for research purposes. At the end of the seminar, an educational video about the IEEE DEIS was broadcasted to the students. Through the seminar, it is hoped that the students are aware of the latest research and networking relevant to high voltage engineering apart from obtaining their knowledge through classroom lectures and textbooks. This would allow the students to enhance learning through research information, in line with UTM's effort to



The audience.



Ms. Hidayah delivering her speech.



Ms. Hidayah (left) receiving a token of appreciation.

IVAT's Strategic Planning Workshop

JOHOR BAHRU, 20 December 2018 – On 20th December 2018, a Strategic Planning Workshop that took place at the Jen Hotel, Puteri Harbour, Johor, was organised by IVAT. The workshop's purpose was to strategise IVAT's future planning in short, medium and long terms to fulfill Universiti Teknologi Malaysia's needs especially in meeting Malaysia Research Assessment (MyRA) II requirements that has been benchmarked by the Higher Education Department (JPT) to the university. The attendees of the workshop were all IVAT's staff including academicians and supporting staff.

Deputy Directors, Prof. Dr. Zolkafle Buntat (Research, Networking and Commercialisation) and Dr. Noor Azlinda Ahmad (Service, Consultancy and Training) presented their strategies to strengthen their portfolio. Heads of Division, Dr.

Zuraimy Adzis (Lightning Research and Safety) and Dr. Mohd Hafizi Ahmad (Discharges, Dielectric and Diagnostics) also presented their planning. Meanwhile, IVAT's Head of Laboratory and Quality Managers also presented the laboratory's direction and ways in improving laboratory's staff development and skills.

The workshop was officially ended by IVAT's Director, Prof. Dr. Zulkurnain Abdul Malek. In his closing remarks, he thanked all IVAT's staff for their efforts to attend and gave their inputs and contributions during the one-day workshop.

Mr. Mohd Nazren Mohd Ghazali, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Various scenes during the workshop.

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Hari Keluarga IVAT

JOHOR BAHRU, 16 November 2018 – IVAT di bawah Kelab Kebajikan Staf IVAT (KKSI) telah menganjurkan Hari Keluarga IVAT bagi tahun 2018 pada 15 dan 16 November 2018 bertempat di Tunamaya Beach Resort, Desaru. Hari Keluarga ini adalah antara aktiviti tahunan yang akan dibuat bagi mengeratkan hubungan silaturahim dikalangan staf dan keluarga. Pelbagai acara untuk kanan-kanak dan dewasa telah dijalankan

bagi menambahkan keceriaan pada program tersebut. Antaranya adalah bawa bola Ping Pong dalam sudu, kepit bola, isi air dalam botol, pindah bola dalam cawan, baling belon dan Piramid Cawan.

Di samping acara utama, penganjur turut menyediakan aktiviti sampingan iaitu Upacara Penukaran Hadiah antara staf serta BBQ Night.

Ms. Nor Elliyana Mazlan, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.

Room and Equipment Rental at IVAT

IVAT offers the following rooms and equipment for rental:



IVAT's Seminar Room can accommodates up to 30 persons (with tables) or 100 persons (without tables). The daily rental rate is RM 350 (standard rate), RM 227 (for UTM's staff) or RM 175 (for UTM's students).



IVAT's Meeting Room can accommodates up to 15 persons. The daily rental rate is RM 300 (standard rate), RM 276 (for UTM's staff) or RM 246 (for UTM's students).

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Gambar-gambar Hari Keluarga IVAT

ITEM	PRICE/DAY *(RM)
ASURING SYSTEM	500
SURING SYSTEM	300
SURING SYSTEM	300
IAMBER	300
IVITY MEASUREMENT	200
ANCE MEASUREMENT	200
URRENT MEASUREMENT	150
NERATOR	800
SYSTEM	300
UX	200 (staff & Student) /300 (others)
AGE LABORATORY	
ment test only	8000
n Student From Other Institutions	1000

*Terms and conditions apply. Subject to the approval from IVAT's Director. For other facilities/ services or more details, please email us: ivat@utm.my



High Voltage Calibration, Testing, Consultancy, Training, Research and Development

at

Institute of High Voltage and High Current, Universiti Teknologi Malaysia

Introduction

> The Institute of High Voltage and High Current, or in Malay, Institut Voltan dan Arus Tinggi (IVAT), was established in Universiti Teknologi Malaysia in 1991

- IVAT's establishment stems from the need of the country for a centre which carries out research and development, testing and calibration work, and training in the field of high voltage engineering
- IVAT is a laboratory accredited under the Laboratory Accreditation Scheme of Malaysia and meets the requirements of MS ISO/IEC 17025:2005 (general requirements for the competence of testing and calibration laboratories)

Accredited Calibration and Testing Services



Ensure the reliability of your high voltage equipment through

Accredited Calibration & Testing Services



CALIBRATION

SAMM NO. 285

Accredited scope of calibration:

- AC up to 180 kV rms DC – up to 180 kV Impulse – 50 kV to 140 kV
- High current up to 1000 A

STANDARDS MS ISO/IEC 17025 TESTING **SAMM NO. 709**

Accredited scope of testing:

 Power cable AC voltage withstand test from 2 kV to 180 kV at 50 Hz

Research and Development

IVAT has 2 main research divisions covering comprehensive research on high voltage engineering:

Lightning Research and Safety Division:

- Lightning monitoring, detection, and protection system
- > Lightning characterization, electromagnetic field, and radio frequency emission
- Overvoltage protection system and insulation co-ordination, measurement techniques, surge arresters, and magnetic engineering
- Grounding system improvement and measurement method
- Super capacitor application in high voltage systems
- Electromagnetic compatibility and interference in high voltage systems



Dielectrics, Discharges and Diagnostics Division:

- Electrical discharge, detection, and monitoring
- Partial discharge analysis on polymeric insulating materials
- Condition monitoring of high voltage equipment
- > Diagnosis and fault analysis
- Forensic investigation
- Material assessment
- Plasma and ozone generation applications
- Low voltage and telecommunication surge protective devices

Consultancy and Training Services

- IVAT offers consultancy services for the following areas:
- Laboratory accreditation based on MS ISO/IEC 17025: 2005
- Protection systems for electrical power networks
- Grounding systems installations
- High voltage product development

popular modules include:

- Electrical Safety Seminar

Contact details :

Dr. Zulkurnain Abdul Malek Professor / Director E-mail: zulkurnain@utm.my

Dr. Zolkafle Buntat Professor / Deputy Director (Research, Networking and Commercialisation) E-mail: zolkafle@utm.my

Dr. Noor Azlinda Ahmad Senior Lecturer / Deputy Director (Service, Consultancy and Training) E-mail: noorazlinda@utm.my

Dr. Zuraimy Adzis Senior Lecturer / Head of Division (Lightning Research and Safety) E-mail: zuraimy@utm.my

Dr. Mona Riza Mohd Esa Senior Lecturer / Laboratory Head E-mail: monariza@utm.my

> Office Phone: +607 553 5615

Institute of High Voltage and High Current, Block P06, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Johor Bahru, Malaysia.

- Lightning protection systems for buildings
- Low voltage and telecommunication surge protective devices
- IVAT also organises training, visits, workshops, seminars and short courses. Some
- Fundamentals of High Voltage Technology
- Three-day Short Course on High Voltage Testing Techniques and Safety
- Two-day Short Course on Grounding Systems
- Short Course on Lightning Protection for High and Low Voltage Systems

Dr. Mohamed Afendi Mohamed Piah

(Electrical Power Engineering) E-mail: fendi@utm.my

Senior Lecturer / Quality Manager

Dr. Zulkarnain Ahmad Noorden Senior Lecturer / Quality Manager

E-mail: zulkarnain-an@utm.my

Senior Lecturer / Head of Division

(Dielectrics, Diagnostics and Discharges)

Dr. Mohd Hafizi Ahmad

E-mail: mohdhafizi@utm.my

Ir. Dr. Lau Kwan Yiew

E-mail: kwanyiew@utm.my

(Calibration)

(Testing)

Associate Professor / Head of Department

Short Course on Partial Discharge Phenomena

Official Website: ivat.utm.mv

Address:

IVAT Learns from Malaysia Transformer Manufacturing

(... continued from page 1)

Through the briefing, it has been understood that MTM has information received during the production tour. After positioned itself as "One Stop Solution Provider" for Malaysia's electrical transformer market. MTM became a wholly owned subsidiary of Tenaga Nasional Berhad in 2007. As a specialist in the business, MTM offers wide and full range of products and services with high quality distribution transformers up to 5000 kVA with maximum voltage of 33 kV and power transformers up to 100 MVA with maximum voltage of 150 kV. More information about MTM can be found here.

After the briefing, IVAT's staff were brought to the manufacturing area where different types of transformer manufacturing processes were shown and explained by MTM's senior engineer, Mr. Zul. Over there, IVAT's staff could see the techniques used for transformer winding and the construction process of low voltage (11 kV) and high voltage (132 kV) transformers, from their initial stage up to the final stage.

IVAT's staff were overwhelmed by the knowledge and finishing the production tour, a brief discussion related to possible collaborations between IVAT and MTM was held. Several possibilities of collaborations have been identified during the discussion and this will be a good opportunity for IVAT's researchers to be engaged with the industrial partners especially in the high voltage field.

The visit ended at 4.00 p.m. and IVAT's staff departed back to UTM at around 4.30 p.m. Overall, the visit was beneficial for IVAT's staff and it is hoped that the trip gave good exposure to IVAT's staff on the transformer manufacturing technology. IVAT sincerely thanks MTM for their generous hospitality during the visit.

Dr. Noor Azlinda Ahmad, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Discussion between IVAT and MTM.



The Bachelor of Engineering (Electrical) programme, codenamed SKEE, is one of the undergraduate programmes offered by the Department of Electrical Power Engineering (POWER), Faculty of Electrical Engineering, Universiti Teknologi Malaysia, to prepare graduates for positions as electrical engineers. The SKEE programme has been designed to emphasise not only on the understanding and acquisition of basic principles and skills in the field of electrical engineering, but also on a wide range of subareas including electronics, control systems, instrumentation, signal processing, telecommunications and power systems. The department also offers the Master of Engineering (Electrical Power) programme, codenamed MKEP, for those interested to pursue a postgraduate degree (by taught course). For more information, please visit POWER's webpage at http:// www.fke.utm.my/power/ [Picture courtesy of the Department of Electrical Power Engineering, Universiti Teknologi Malaysia]

Pursue Your Postgraduate Studies at UTM IVAT

The Institute of High Voltage and High Current (IVAT), Universiti Teknologi Malaysia (UTM), welcomes applications for Doctor of Philosophy (PhD) and Master of Philosophy (MPhil) studies to undertake research projects at IVAT. The themes of the projects include:

- Lightning characterisation, monitoring and detection
- Electromagnetic compatibility and interference
- Partial discharge detection and measurements
- Plasma and ozone generation applications
- Supercapacitors in high voltage applications
- Dielectrics and electrical insulating materials

Admission Requirements:

• PhD:

Entry to the programme requires a Master degree in Electrical Engineering or equivalent from UTM or other Institution of Higher Learning recognised by UTM. First-class Bachelor graduates (CGPA \ge 3.67/4.00) may apply for a fast-track PhD (terms & conditions apply)

MPhil:

Entry to the programme requires a Bachelor degree in Electrical Engineering or equivalent from a tertiary institution recognised by UTM, with a minimum CGPA of 3.00/4.00 for fresh graduates, or a minimum of 2.50/4.00 with four (4) years experience as an Electrical Engineering practitioner

English Requirement for International Students:

All international students must have a valid two-year old TOEFL or IELTS certificate with a TOEFL score of 550 (or 79 IBT) or an IELTS Band 6

Why Study at IVAT?

- Our field of electrical and electronic engineering is ranked Top 100 in the world (according to QS World Ranking by Faculty 2017)
- Our high voltage laboratory is the largest in Malaysia
- We have well-equipped high voltage facilities
- We have widely experienced supervisors working on a variety of high voltage related research and development
- We have dedicated student working areas for office and laboratory work

To Apply:

• Please send your resume with academic qualifications, transcripts and research proposal to the Director of IVAT, Prof. Dr. Zulkurnain Abdul Malek at zulkurnain@utm.my anytime throughout the year. You may also directly contact the respective project supervisors at IVAT.

For more information about IVAT, please visit: http://ivat.utm.my/ For more information about UTM's postgraduate programmes, please visit: http://admission.utm.my/



DOCTOR IN ELECTRICAL ENGINEERING



Mini Symposium for High Voltage Technology

[OHOR BAHRU, 15 May 2019 – A mini symposium for the third year students of High Voltage Technology was held at IVAT on 15 May 2019. The seminar was arranged for the students to present the outcome of their research-based assignment which covered several topics learned from the subject of High Voltage Technology, such as insulation coordination, lightning, breakdown theory and generation of high current and high voltage impulse. It was also done to fulfil the requirement of the Teaching-Research Nexus element as stated in the course outline of High Voltage Technology. About 150 students in groups of 3-5 students participated in the poster presentation and they were evaluated by the academic panels from IVAT. Overall, the mini symposium was successfully carried out and IVAT hopes that the students gained useful experience from their assignments and the mini symposium.

Ir. Dr. Lau Kwan Yiew, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Various scenes during mini symposium.

More News on IVAT and MyHVnet

In case you missed the previous news on IVAT, Issue 5 of IVAT Newsletter, published in June 2018, can be downloaded from the following link:

http://ivat.utm.my/newsletter/

Meanwhile, the latest news on Malaysian High Voltage Network (MyHVnet), disseminated through MyHVnet Newsletter (an initiative for the dissemination of high voltage related news, with particular emphasis on MyHVnet's activities), can be downloaded from the following link:

http://ivat.utm.my/myhvnet/news/





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Jungle Trekking IVAT

JOHOR BAHRU, 29 March 2019 - Pada 29 Mac 2019 tiviti jungle trekking ini dimulakan dengan bacaan doa dan (Jumaat), seramai 16 orang peserta yang terdiri daripada 9 senaman ringkas sebelum perjalanan bermula pada pukul orang staf IVAT, 2 orang peserta luar dan 5 orang ahli Ad-8.00 pagi. Para peserta telah melalui kawasan hutan dengan venture and Recreation Club Universiti Teknolohi Malaysia laluan yang mencabar dan mengambil masa kira-kira 3 jam (ARC UTM) telah menyertai aktiviti menyusuri hutan (jungle setengah sehingga tiba ke destinasi penamat dan selamat. trekking) di Hutan Rekreasi UTM. Aktiviti ini telah dianjur-KKSI IVAT mengambil kesempatan ini merakamkan ucapan kan oleh Kelab Kebajikan Staf IVAT (KKSI). Turut serta daribuan terima kasih kepada semua yang terlibat sama ada lam aktiviti ini ialah Dr. Noor Azlinda Ahmad selaku Presiden secara langsung atau KKSI IVAT. Seramai 3 orang ahli dari ARC UTM telah sudi tidak langsung dalam menjadi pemandu pelancong bagi membimbing dan menunjuk menjayakan aktiviti ini. arah sepanjang perjalanan di dalam Hutan Rekreasi UTM Semoga aktiviti yang tersebut. Antaranya adalah En. Roslan Bin Abd. Ghani selaku sihat ini dapat diterus-Pengerusi ARC UTM, En. Abd. Haris Bin Ismail dan En. Syahkan di masa akan datang fizul Iqmal Bin Abd Malek. dengan lokasi yang berbeza.

Tujuan aktiviti ini dijalankan adalah bagi meningkatkan stamina, ketahanan fizikal dan mental dalam mengharungi segala cabaran, mendedahkan tentang keindahan alam sekitar di samping memberi pendidikan kepada pegawai/kakitangan UTM terhadap kehidupan flora dan fauna yang ada, serta memberi ketenangan dan menghilangkan tekanan kerja. Ak-



Ga,bar-gambar ketika jungle trekking.

Ms. Nor Elliyana Mazlan Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Majlis Anugerah Kecemerlangan dan Penghargaan IVAT 2018

JOHOR BAHRU, 19 December 2018 – Pada 19 Disember 2018, telah diadakan Majlis Anugerah Kecemerlangan dan Penghargaaan IVAT 2018. Majlis telah berlangsung di Hotel Jen, Putri Harbour, Iskandar Putri. Majlis yang diadakan bertujuan memberi penghargaan kepada staf-staf IVAT atas kejayaan dan juga pencapaian yang diperolehi.

Antara kategori-kategorinya iaitu Kategori Geran Penyelidikan diberikan kepada Prof. Dr. Zulkurnain Abd Malek, Kategori Khidmat Masyarakat diberikan kepada Dr. Zulkarnain Ahmad Norden, Kategori Penerbitan ISI diberikan kepada Ir. Dr. Lau Kwan Yiew, Kategori Pen-Scopus diberikan kepada Prof. Dr. Zolkafle erbitan Buntat, Kategori Harta Intelek diberikan kepada Dr. Zuraimy Adzis, Kategori Penyeliaan diberikan kepada

Prof. Dr. Zulkurnain Abd Malek, dan Kategori Pengurus Kalibrasi terbaik diberikan kepada Dr. Noor Azlinda Ahmad.

IVAT juga memberi penghargaan kepada staf-staf sokongan di atas kecemerlangan mereka dalam menjalankan tugas yang diberikan, dan anugerah itu diberikan kepada Pn. Nor Eliyana Mazlan, En. Hairoisyam Abd. Rani dan En. Mohd Nazren Mohd Ghazali. Selain daripada pemberian penghargaan, pada malam tersebut juga diadakan majlis menyambut hari lahir staf dari bulan Januari hingga Jun dan Julai hingga Disember.

Mr. Zamri Kassim, Institute of High Voltage and High Current, Universiti Teknologi Malaysia.



Gambar-gambar ketika majlis dijalankan.

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IVAT's Bowling Competition

KULAI, 22 February 2019 – Kelab Kebajikan Staf IVAT (KKSI)



Photos during bowling competition.

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Other Happenings at IVAT



IVAT visited by Chair, Resource Sustainability Research Alliance of Universiti Teknologi Malaysia, Prof. Ir. Dr. Haslenda Hashim, in May 2019.



IVAT participated in corporate social responsibility programme at Sekolah Tun Fatimah, Johor Bahru,, in April 2019.



IVAT organised Short Course on Lightning Protection System at Institut Teknologi Petroleum (INSTEP), Petronas, in December 2018.



IVAT's staff delivered lecture at Andalas University, Indonesia, in April 2019



IVAT's staff visited Perusahaan Listrik Negara (PLN), Indonesia, in July 2018.

For more updates, please follow us on Facebook (https://www.facebook.com/ivat.utm)

Universiti Teknologi Malaysia Improves to #17 in the QS Top 50 under 50 Ranking 2020

Universiti Teknologi Malaysia (UTM) has improved its rankview the complete QS World University rankings, please ing in Quacquarelly Symonds (QS) World University Rankvisit https://www.topuniversities.com/university-rankings/ ings by moving up to #17 in the QS Top 50 under 50 Rankworld-university-rankings/2020 ing 2020 and is now in the top 20 list of young outstanding Meanwhile, the Bachelor of Engineering (Electrical) prouniversities. This significant performance is largely attributgramme, codenamed SKEE, is one of the undergraduate ed to the strong commitment by UTM faculty members to programmes offered by the School of Electrical Engineerprovide the best support in facilitating students' learning ing, Faculty of Engineering, UTM, to prepare graduates for experience, while harnessing potential talent among stupositions as electrical engineers. The SKEE programme has dents to strive for excellence. UTM is also set to engage in been designed to emphasise not only on the understanding more impactful research collaborations that can ultimately and acquisition of basic principles and skills in the field of lead to improved performance through joint publications electrical engineering, but also on a wide range of subareas and increased citations. UTM will also continue its efforts including electronics, control systems, instrumentation, in enhancing research collaborations with partners across signal processing, telecommunications and power systems. the globe, especially in areas of mutual interests. This The School of Electrical Engineering, UTM, also offers the would help UTM researchers to leap forward and stay rel-Master of Engineering (Electrical Power) programme, evant and visible among peers at the global level. UTM codenamed MKEP, for those interested to pursue a postwould like to congratulate and thank all staff and students graduate degree (by taught course). For more information, who contributed and put effort into this achievement. To please visit http://engineering.utm.my/electrical/





Picture courtesy of the Office of Corporate Affair, Universiti Teknologi Malaysia

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Welcome to IVAT

The Institute of High Voltage and High Current (IVAT), Universiti Teknologi Malaysia (UTM) is committed to entertain visits by delegates from not only its own university, but also as far as overseas. The main aim for IVAT organising visits is to share their research, services and consultancy experience to as many people as they could, especially in areas relevant to high voltage engineering.

For interested students from schools or higher learning institutions, the focus of visit would be on IVAT's role in building the nation through their technical support to electrical energy industries to achieve reliable and efficient operations. This is inculcated through their fascinating demonstration on high voltage air discharges (either impulsive or sustainable low current arcs).

For representatives from private companies, IVAT showcases their services and consultancy capabilities, as well as their research achievements, in attempts to increase the return of investments to the university. As for executives of ministerial bodies and government parastatals, IVAT extends their knowledge and experience to open possible collaborations on research works.

A routine visit to IVAT would include a 5-minute video presentation on IVAT, followed by a 10-minute briefing by an IVAT's academician, then a question-and-answer session on any topic relevant to the visit. Interested parties are most welcome to visit IVAT.



Photos taken during visits to IVAT.



Published by: Institute of High Voltage and High Current (IVAT) Block P06 Universiti Teknologi Malaysia 81310 Johor Bahru, Johor Malaysia Phone: +60 7 553 5615 Fax: +60 7 557 8150 E-mail: ivat@utm.my Website: ivat.utm.my

The Institute of High Voltage and High Current, or in Malay, Institut Voltan dan Arus Tinggi (IVAT), was established in Universiti Teknologi Malaysia in 1991. It was initially an educational laboratory which provides facilities for carrying out experiments, research and consultancy services in high voltage engineering, as early as the 1970s.

The establishment of IVAT stems out from the needs of the country for a centre which carries out research and development, test and calibration works in high voltage areas, so that efficient technologies and power system apparatus can be effectively employed for the transmission and distribution to the consumer of electrical energy.

In 1992, the institute became the first institution in the country to be accredited to handle high voltage test and calibration works according to ISO/IEC Guide 25. In 2004, IVAT was accredited with the ISO/IEC 17025 in the field of high voltage electrical calibration. In certification, IVAT has also successfully migrated to MS ISO/IEC 17025 since July 2007 till date. Recently in 2013, IVAT was accredited with the onsite calibration and the scope of calibration had been extended up to 180 kV AC (alternating current), 180 kV DC (direct current) and 140 kV impulse.