

E-ISSN: 2716-6848

JOURNAL OF ENGINEERING, TECHNOLOGY & SOCIAL SCIENCES

JURNAL KEJURUTERAAN, TEKNOLOGI & SAINS SOSIAL

VOLUME 11 ISSUE 2, 2025
SPECIAL ISSUE - ICoSciD 2025

CENTER OF RESEARCH AND INNOVATION EXCELLENCE (C-RIE)
POLITEKNIK UNGKU OMAR

31400 IPOH, PERAK
1-300-88-1969 / 05-545 7622 | FAKS 05-5471162
www.puo.edu.my

Hak Cipta/Copyright © Politeknik Ungku Omar 2025

Hak Cipta Terpelihara. Tidak dibenarkan mengeluarkan ulang dalam apa jua bentuk dan dengan apa jua cara, samada elektronik, fotokopi, mekanik, mahupun lain-lain, mana-mana bahagian, ilustrasi atau kandungan jurnal ini sebelum mendapat izin bertulis daripada Politeknik Ungku Omar.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, whether electronic, mechanical, photocopying, or other, any part, or illustrations of this journal, without prior permission from Polytechnic Ungku Omar.

For further information on the publications, please contact:

Center of Research and Innovation Excellence (C-RIE)
Politeknik Ungku Omar
Jalan Raja Musa Mahadi
31400 Ipoh, Perak
Email: editor.jktss@puo.edu.my

Design and Production Editor:
Dr.-Ing. Rosmawati Mat Jihin (rosmawati@puo.edu.my)
Dr. Mazlina Alang Othman (mazlina@puo.edu.my)



Diterbitkan oleh/Published by:
Politeknik Ungku Omar
Jalan Raja Musa Mahadi
31350, Ipoh
Perak
<https://jktss.puo.edu.my/jurnalpuo/index.php/jurnal>

International Conference on Smart Cities
Development
(ICoSCiD 2025)

@

1st International Congress on Green
Engineering and Sustainable Development
(ICGESD 2025)

29 - 30 September 2025
Hotel Casuarina@Meru, Ipoh, Perak, MALAYSIA



EDITORIAL TEAM MEMBERS

- TS. DR. SUNITHA V. DORAISAMY (CHIEF EDITOR)
- TS. SAEDAH JOHNY NOAKES
- SR. GS. NORINA BINTI OMAR

REVIEWERS

- TS. DR. HAJAH SITI SALWANA BT MOHD NAWAYAI (POLITEKNIK SULTAN IDRIS SHAH)
- DR. SAREHATI BINTI UMAR (UNIVERSITI TEKNOLOGI MALAYSIA)
- DR. CHAI TECK JUNG (POLITEKNIK SULTAN AZLAN SHAH)
- DR PANBARASI GOVINDASAMY (POLITEKNIK UNGKU OMAR)
- DR.NIK ANISAH BINTI NIK NGAH (POLITEKNIK SULTAN MIZAN ZAINAL ABIDIN)
- DR. NADIRAH BINTI DARUS (UNIVERSITI TEKNOLOGI MALAYSIA)
- MUHAMAD RAZUHANAFI BIN MAT YAZID (UNIVERSITI KEBANGSAAN MALAYSIA)
- IR. TS. DR. THEVANEYAN KRISHTA DAVID (UNIVERSITI TEKNOLOGI MARA SHAH ALAM)
- DOH SHU ING (UNIVERSITI MALAYSIA PAHANG AL-SULTAN ABDULLAH)
- SYAHRUL FITHRY BIN SENIN (UNIVERSITI TEKNOLOGI MARA PULAU PINANG)
- NORSHILA BINTI ABU BAKAR (POLITEKNIK SULTAN ABDUL HALIM MU'ADZAM SHAH)
- DR. WENNY ARMINDA (INSTITUT TEKNOLOGI SUMATERA)
- ALIA SYAFIQAH BINTI ABDUL HAMED (UNIVERSITY MALAYSIA TERENGGANU)
- TS. DR. NAEEMAH BINTI YUSOF POLITEKNIK SULTAN IDRIS SHAH
- SR DR NOOR SUHAIZA BINTI SAUTI POLITEKNIK SULTAN HAJI AHMAD SHAH
- TS. DR. RAMU VELUSAMY POLITEKNIK UNGKU OMAR
- TS. AHMAD SID HIJAZ BIN MD SAAID POLITEKNIK SULTAN ABDUL HALIM MUADZAM SHAH
- AZMI BIN AHMAD POLITEKNIK TUN SYED NASIR SYED ISMAIL
- MUHAMMAD LUTFI BIN OTHMAN POLITEKNIK PORT DICKSON
- SANG KUN XIAMEN UNIVERSITY MALAYSIA
- YAP KEA LEE XIAMEN UNIVERSITY MALAYSIA
- DR AHMAD YUSRI BIN MOHAMAD POLITEKNIK SULTAN HAJI AHMAD SHAH
- DR. ASRIL AMIRUL ZAKARIAH UNIVERSITI SULTAN ZAINAL ABIDIN
- MUSLIANIE BINTI MD ISA UNIVERSITI SULTAN ZAINAL ABIDIN
- SHARINATOL AKMANIDA BINTI JAMALUDIN MINISTRY OF HIGHER EDUCATION
- ABD WAHID BIN RASID UNIVERSITI TEKNOLOGI MALAYSIA
- MIMI DIANA BINTI GHAZALI UNIVERSITI TEKNOLOGI MARA PERLIS
- HASPINA BINTI SULAIMAN POLITEKNIK UNGKU OMAR



ICOSCID CONFERENCE SECRETARIAT

MOHD AZMI B.ZULKIFLI	ADVISORY
SR DR. MASRETA BINTI MOHD @ BASRI	PROGRAM DIRECTOR
TS. DR. RAMU A/L VELUSAMY	DEPUTY PROGRAM DIRECTOR
SR. GS. MOHD ZAHIRUDIN B. MOHAMMED NA'AIM	PROGRAM SECRETARY
SUHAIZAM B ROSLI @ SHUIB	PROGRAM TREASURER
TS. DR. SUNITHA V. DORAISAMY	PROCEEDINGS, PUBLICATIONS & EDITORIALS COORDINATOR
TS. SAEDAH JOHNNY NOAKES	
SR. NORINA BINTI OMAR	
JUNAIDAH BT ABU	
DR. PANBARASI A/P GOVINDASAMY	PAPER REVIEW COORDINATOR
MAZARINA BINTI MD ZAIN	
ARUTCHELVI A/P THAYANANDAN	
ROZINA BINTI MUHAMMAD	
ROZILAILI BINTI MUSTAPA	
SR. NAZATUL FARIZA BINTI BAKRI	REGISTRATION & PARTICIPANT MANAGEMENT COORDINATOR
WAN NURUL HEKMAH BT WAN MOKHTAR	
SR. SHARIFAH LAILATON KHADIJAH BINTI SYED ABDULLAH	
SR. SITI KAMISAH BINTI MOHD YUSOF	
ZAHARIAH BINTI ABDUL KARIM	
MAZZIYATOL FARIZZA BINTI MAT	DESIGN, VIDEO, GIMMICK & MONTAGE COORDINATOR
MOHD OMAR B MOHAMED HASSAN	
SR. NOORIZAWATY BINTI YUSUFF	
ERWAN BIN ABDUL THALIB	

ICOSCID CONFERENCE SECRETARIAT

SR. ROSMALATI BINTI AMAN SHAH	WEBSITE DESIGN COORDINATOR
NIK MOHD IZNAN BIN TUAN YAAKUB	
SARIFAH SALWA BT SAPANI	
AHMAD AZAHAN B MOHAMAD	TECHNICAL & MULTIMEDIA COORDINATOR
WAN AHMAD FAIZAL B WAN ABDULLAH	
NOR ASNORA BT BADRI	
MOHD YUSRI BIN HJ. YUNUS	
AZIZAH BINTI HARON @ HASSAN	RELATIONS, PROMOTION AND PUBLICITY COORDINATOR
HASPINA BINTI SULAIMAN	
DR. NURULAINI HAFIZAH BT MOHD HAFIR	
ANEZIATUN AQMAL BT. PUTEH AHMAD	
SARVINDER SINGH A/L HACHARAM SINGH	PROGRAM BOOK, MODERATORS, AND ITINERARY COORDINATOR
LAILATUL RAHMAH BT. NEKMAT	
FARIZAN BINTI ZAKARIA	
NURUL ASHIKIN BINTI MOHAMMAD SHUHAIMI @ HANG JEBAT	SPONSORSHIP & PARTNERSHIPS COORDINATOR
WAN SHARIZATUL SURAYA BT WAN MOHAMED RASHDI	
NURUL IZZA BINTI ABDUL GHANI	
RUHAIZAT BINTI JUBRI	CATERING & REFRESHMENTS COORDINATOR
JULAIHA BINTI ABD. RAHIM	
NOR MAIZAN BT ABU BAKAR	
NORIAH BINTI JOHAN	



ICOSCID CONFERENCE SECRETARIAT

MAZLINA BT ALANG OTHMAN	EVENT FLOOR MANAGER COORDINATOR
NORLIZA BINTI MOHD NOOR	CERTIFICATES & SOUVENIRS COORDINATOR
AZMANIRA BINTI MUHAMED	
NURUL HAFIZAH BINTI MOHD ASHAARI	
DAYANA SAFRA BINTI MOHD SOPIAN	
KAMARUDIN B YUNUS	SITE PREPARATION COORDINATOR
AZMAN B BAHAROM	
MOHD FAIRUS BIN DAHARI	



JKTSS

eISSN 2716-6848



9 772716 684003

CENTER OF RESEARCH AND INNOVATION EXCELLENCE (C-RIE)
POLITEKNIK UNGKU OMAR

31400 IPOH, PERAK
1-300-88-1969 / 05-545 7622 | FAKS 05-5471162
www.puo.edu.my



www.mypolycc.edu.my

POLYCCOfficial



POLYCC
TVET For All