Contents

Oral Session 1: Track 1 Integrating Critical Infrastructures in Smart Cities **Session Chair: Assoc.Prof.Dr. Montri Wiboonrat**		1
P05730	Study of Cyber Security Initiatives In Smart City	2
P06045	Optimizing Smart City Street Lighting: A Hybrid IoT-SAC Approach	3
P06115	Strategic Planning as Management Tool for the Development of Smarter Cities: The Case of Brazilian Cities	4
P06152	Automatic Tweet Mention Recommendation in X for Reporting Civic Issues - Case Study based on Mumbai City, India	5
P06217	Quantum Sensing Technologies and Smart Cities: Opportunities and Challenges	6
Oral Session 2: Track 2/1 Smart Education and Multidisciplinary Analysis **Session Chair: Dr. Theeraya Mayakul**		7
P05750	Conversation Analysis (CA)-informed Algorithmic Approach to Augmenting Closed Captions with Stressed Syllables to Help Thai EFL Learners Improve Their English Pronunciation	8
P05757	Evaluation of Artificial Intelligence, as a Smart City Tool, based on an Artificial Intelligence-Generated in-depth literature Review of Smart City Education	9
P05766	Effectiveness of Programming Classes for Elementary School Students Using Drones	10
P05888	Using MATLAB App for Electromagnetic Field Educational Tool in Smart University	11
P05889	Enhancing Student's Interest in Smart Farm Education Using Simulink and MKR 1010	12

Oral Session 3: Track 9/1 Smart environment **Session Chair: Dr. I-soon Raungratanaamporn**		13
P05734	Drone Pollution Tracking in Cities using Recurrent Proximal Policy Optimization Learning	14
P05765	Integrating DBD Plasma-Enhanced Seed Germination for Promoting Sustainable Agriculture in Smart Cities	15
P05767	Utilizing Gliding Arc Plasma for CO_2 Management and Enhanced Agriculture Toward Smart and Sustainable Cities	16
P05798	YOLO-Based Waste Classification and Detection for Smart Recycling	17
P05876	Low-Cost Smart Sensing Pipeline: Assembly, Calibration, and Interpretation of Air Quality Data	18
Oral Session 4: Track 5/1 Smart Power system **Session Chair: Assoc.Prof.Dr. Sanchai Dechanupaprittha**		19
P05804	Mitigating Electrical Instability in Northern Thailand: Microgrid Approach with Optimized Battery Energy Storage System	20
P05847	A Rule-Based, Grey Wolf Optimizer, and Support Vector Machine Approach for Undervoltage Localization in Low-Voltage Distribution Systems	21
P06035	A Serious Game Connecting the Smart Meters of Residential Users for Demand Side Management: Lessons Learned in the Preparation Stage	22
P06160	Design and Implementation of a Solar Off-Grid Container Home	23
P06172	Trends and Variability of Thunderstorm Days in Thailand: Implications for Lightning Protection	24

Oral Session 5: Track 4/1 Smart Energy Systems **Session Chair: Prof.Dr. Jongin Hong**		25
P06089	Decision Support Tools for Developing Energy Strategies in Smart Cities	26
P05778	Data-Driven Insights for Smart Energy Efficiency Management of a Heat Pump Water Heating System	27
P05780	Study on Adaptation of Model-Agnostic Meta- Learning Integrated Deep Q-Learning for HVAC Control	28
P06010	Experimental study of a bi-directional thermal and electricity prosumer with simultaneous heating and cooling heat pump system	29
P06043	Development of a High-tech Multi-loop Aquaponics System with Green Internet of Things and Semitransparent Agrivoltaics	30
Oral Session 6: Track 10/1 General or Related Track **Session Chair: Asst.Prof.Dr. Umpiga Shummadtayar**		31
P05679	Internet of Things in the Advancement of Smart Cities on Brazil	32
P05760	An Adaptive Momentum Driven Variable Step-Size Filtered-x Weight Accumulated LMS for Improved HNANC	33
P05769	Does the smartening of cities imply a demand for a new leadership model?	34
P05785	Testing Routing Strategies by Simulating the Mobile IoT Edge/Cloud Continuum	35
P06017	Integrating Urban Operation Center Systems for Enhanced Smart City Management and Emergency Response	36

Oral Session 7: Track 3/1 Smart Transportation **Session Chair: Dr. Naphat Ketphat**		37
P05673	Full coverage of charging stations: A case study in Japan road network	38
P05775	Physical Model Approach for Estimating Energy Consumption of Electric Vehicle	39
P05796	SmartMoveChain: A Proposal for Unified Scalable BMaaS for Smart Cities	40
P05799	Fire Detection Automation in Search Drones using a Modified DeepLabv3+ Approach	41
P06006	Making pedestrian and micromobility routinginclusive through personalisation and feedback	42
Oral Session 8: Track 2/2 Smart Education and Multidisciplinary Analysis **Session Chair: Asst.Prof.Dr.Yod Sukamongkol**		43
P05752	Comprehensive Security Measures in IT: A Unified Approach to Mitigate Internal and External Threats	44
P05781	Embracing Artificial Intelligence in Higher Education: Opportunities and Challenges for a South African University of Technology	45
P05911	Contribution of academic disciplines to the development of competencies for sustainable development in students: the perspective of academics	46
P05991	Rainwater Collection in Rural Communities: Experience of a Capstone Project for Students of Sustainable Development Engineering	47
P06142	SITAtlas: An AI-Enhanced Geospatial Navigation System for Smart Campus Environments	48

Oral Session 9: Track 6/1 **Advanced Applications and Data Analysis for Smart Cities** **Session Chair: Asst. Prof. Sumonta Kasemvilas, Ph.D**		49
P05663	Bridging the Gap: Microcontroller Approaches to Industrial Connectivity Evolution	50
P05749	Digital Twin Framework For Fault Detection and Diagnosis in Smart Buildings	51
P05782	Causal Reinforcement Learning for Optimisation of Robot Dynamics in Unknown Environments	52
P05784	A Machine Learning Application for Smart Government: Dashboards for Effective Taxation of Property Taxes	53
P06022	Enhanced Non-Intrusive Load Monitoring using Convolutional Neural Networks and Synthetically Balanced Appliance Consumption Patterns.	54
Oral Session 10: Track 5/2 Smart Power system **Session Chair: Asst.Prof.Dr. Thongchart Kerdphol**		55
P06137	An improving of MEA distribution system performance with integrated OLTC-transformer and energy storage system	56
P06140	Comparison of Insulation Cable Voltage Withstand Testing requirement Using Very Low Frequency Test Methods According to IEC and IEEE Standards	57
P06158	Grid-Forming Inverters using Phase-Locked Loop for Enhancing Frequency Stabilization	58
P06159	Dynamic Impact of Cyber-Attacks on Grid Forming Inverters	59
P06162	Hybrid Energy Storage System in DC Microgrids – An Enhanced Distributed Coordinated Control	60

Oral Session 11: Track 4/2 Smart Energy Systems **Session Chair: Assoc.Prof.Dr. Suneerat Fukuda**		61
P05777	Integrated Energy Management System and Optimization in Smart Grids: Case of Smart Campus in Thailand	62
P05768	A Comprehensive Review of Battery Energy Storage Systems for Grid Stability and Renewable Integration: A Focus on Lithium-Ion's Grid Batteries in Thailand	63
P06127	Smart Streetlight by using Smart Meter Network	64
P06131	Energy self-sufficiency by building and load type in smart village community: A large-scale long-term experimental evaluation	65
P06146	Smart Energy Guardian: A Hybrid Deep Learning Model for Detecting Fraudulent PV Generation	66
P06200	Integration of Building Integrated Photovoltaic (BIPV) Façade System to Maximize Selfconsumption Energy of High-rise Buildings in Thailand	67
Oral Session 12: Track 10/2 General or Related Track **Session Chair: Assoc. Prof.Dr.Athikom Roeksabutr**		68
P05763	Contrast Enhancement of Image Using Dynamic Range between Histogram Valley and Gamma Transformation	69
P05840	Modeling the Impact of Pedestrianization on Urban Air Quality	70
P05885	A Multi-Criteria, Multi-Expert Sports Technology Maturity Model for the Evaluation of Smart Cities	71
P05894	Enhancing Smart City Solutions: A Study on Communication Protocol Efficiency and Effectiveness	72
P05903	Salve Elas: A Comprehensive Mobile App for Combating Domestic Violence in Smart Cities	73
P06133	Impacts of Tourism Activities on Housing Affordability: A case study of Malta Island	74

Oral Session 13: Track 3/2 Smart Transportation **Session Chair: Assoc.Prof.Dr. Saroch Boonsiripant**		75
P05733	Automating Emergency Landing in Cities with Cognitive Stress Reducing Explanations to Pilot-in-the-Loop	76
P05963	Bidirectional Charging Use Cases: Innovations in E-Mobility and Power-Grid Flexibility	77
P06028	Securing Smart Transportation: Blockchain and IoT for Sustainable Cities	78
P06032	Enhanced ETA Predictions with T-GCN on Optimized Road Segments	79
P06149	Advanced Machine Learning for Predicting Parking Availability in Urban Areas	80
Oral Session 14: Track 6/2 **Advanced Applications and Data Analysis for Smart Cities** **Session Chair: Asst. Prof. Dr. Manirath Wongsim**		81
P05770	Continuous Lot-by-Lot Sampling plan incorporating Single Sampling Methodology for Zero-Inflated Poisson Scenarios	82
P05786	An Artificial Intelligence Tool for Identifying Tax Evasion Rates in Smart Government	83
P06025	Filling in the Blanks: Applying Data Imputation in incomplete Water Metering Data	84
P06026	Smart Cities apply deep learning and blockchain for Human identification in illegal graves through dental tartar analysis and its relation to soil territory	85
P06029	DVB-S Based Passive Radar as Single Node of Low-Cost Sensor Network for Smart City Protection	86
P06034	A Methodology for School Accessibility: Integrating Student Commutes and School Capacity	87

Oral Session 15: Track 9/2 Smart environment **Session Chair: Dr. Pipatphon Lapamonpinyo**		88
P05754	Value of Coupled Flood Modelling in Urban Areas for Decision-Making on Mitigation Measures	89
P05756	IoT-Enabled Environmental Monitoring and Forecasting with GSM-Based Alerts	90
P06021	AquaMOM: Adaptive IoT System for Water Monitoring in Challenging Environments	91
P06120	Photovoltaic Surface Environmental Contaminant Detection Based on Saliency Prediction	92
P06135	Indoor Air Quality Assesement Monitoring and Control: Planning the TwinAIR project Swedish Pilot	93
P06136	Reconstruction of 3D Point Cloud of Entire Greenhouse using RGB-D Camera	94
Oral Session 16: Track 5/3 Smart Power system **Session Chair: Assoc. Prof. Dr. Nattachote Rugthaicharoencheep**		95
P06126	Voltage Issue Alleviation in Low Voltage System with High PV and EV Penetration Using Distribution Transformer with On-Load Tap Changer (OLTC)	96
P06170	Health Index of Old Category Gas Insulated Switchgear	97
P06183	Battery Degradation Assessment for Electric Vehicles Participating in Frequency Containment Reserve	98
P06195	Mitigation of Equipment Overload and Undervoltage for Electric Vehicle Charging in Low-Voltage Distribution System	99
P06199	A Simple TimeGPT-Enhanced Load Forecast Method for Optimal Power Flow in Islanded Microgrid Control	100
P06216	Dynamic Optimization for Smart EV Charging: Insights from the DymoBat Project	101

Oral Session 17: Track 7 New Habitats in Smart Cities 102
Track 8 Data Center and Cloud Technologies
Session Chair: Asst.Prof.Dr. Sakkarin Sapu

P05678	Stray Dogs: Unsung Heroes of Our Streets and Neighborhoods	103
P05783	Urban rehabilitation model: A blueprint for efficient, livable, smart and sustainable urban environments.	104
P06031	Enhancing Security of Smart Cities with "Signal for Help" Recognition System	105
P06091	Design and Implementation of Green Internet of Things in Container-Based Multi-Loop Aquaponics System	106
P06111	FEDAR: Federated Association Rules based on DAG for Distributed Knowledge Environments	107

Oral Session 18: Track 10/3 General or Related Track 108
Session Chair: Assoc.Prof.Sorawit Narupiti

P05902	A Novel Volumetric Vehicle Counting Using Artificial Intelligence in Smart Cities	109
P06024	When Circular Economy Meets the Smart City Ecosystem: Defining the Smart and Circular City	110
P06102	Opportunities and Challenges in Landfill Mining Business in Thailand in the Government Agencies' View Point	111
P06114	The Montreal Model for Integrating Ethics and Legal Compliance to Data Governance Frameworks for Smart City Projects	112
P06143	Community Biochar Kiln for Efficient Agricultural Waste and Biomass Disposal	113
P06218	Evaluating Spatial Centrality Dynamics in Tourist Hubs: An In-Depth Analysis of Phuket, Thailand	114

Oral Session 19: Track 3/3 Smart Transportation **Session Chair: Asst.Prof. Dr. Uthane Supatti**		115
P06033	Synthetic Population Generation for Autonomous Vehicle Demand Forecasting	116
P06110	Ultimate Ride: Minimizing Costs for Travel Bus Operator	117
P06112	Adaptive Cluster-Based Synthetic Minority Oversampling Technique for Transportation Mode Choice Prediction with Imbalanced Data	118
P06129	Tracing the Evolution of Artificial Intelligence Patent Trends in Green Transportation	119
P06132	Enabling Sustainable Urban Mobility: The Role of 5G Communication in the Mobilities for EU Project	120
Oral Session 20: Track 10/4 General or Related Track **Session Chair: Asst.Prof.Dr.Somchai Hiranvarodom**		121
P05758	Enhancing Soft Target Protection in Smart Cities: Comparing Stakeholder and Citizen Perspectives	122
P06018	The Role of Smart Solutions Deployment: Insights from a Smart City Initiative	123
P06151	BlockEdge-based Private Virtual Storage for Personal Data Privacy Protection	124
P06153	Opportunities and challenges in elections through e-voting: an analysis on voters participation	125
P06154	Requirements Engineering for Smart Cities: Emerging Trends and Techniques	126

Oral Session 21: Track 6/3 **127**
Advanced Applications and Data Analysis for Smart Cities
Session Chair: Prof.Dr.Prayoot Akkaraekthalin

P06109	Enhancing population diversity based dandelion Optimizer for solving global optimization problems	128
P06125	Data Driven Solid Waste Management Optimization with Vehicle Routing and Redistribution Strategy	129
P06134	VR Pedestrian Simulation to Promote Understanding of Different Perspective for Implementing Walkable City	130
P06138	Novel Application Creation Paradigm using Natural Language Compiler based on LLM	131
P06147	Blockchain-based Built Environment Data Management for Modular Construction	132
P06150	Eggplant Detection and Counting Across the Entire Greenhouse Using Deep Learning and Motion Parallax	133

Oral Session 22: Track 5/4 Smart Power system 134
Session Chair: Dr. Noppada Teera-Achariyakul

P06108	Design and Development of a Leakage Current Monitoring System for Suspension Insulators on a HV Transmission Tower	135
P06157	Implications of Decoupling VFID State-State Models for Enhanced Simulation CPU-Time	136
P06165	Design of Rooftop PV System and EV Supply Equipment for Home According to Electrical Installation Standards in Thailand	137
P06207	Optimal Placement and Sizing of Energy Storage Systems in Low Voltage Distribution Network	138
P06221	Solid-State Transformer Using Dual Active Bridge for Power Distribution Systems	139

Oral Session 23: Track 3/4 Smart Transportation **Session Chair: Assoc.Prof. Andrew Keong NG**		140
P06023	SCOUT-PARK: Smart Camera Optimization for Unified Tracking and Advanced Vehicle Recognition in Indoor Parking Systems	141
P06148	Torque Ripple Mitigation Using Field Oriented Control for BLDC in Small Electric Vehicles	142
P06144	Agent-Based Decentralized Energy Management of EV Charging Station with Solar Photovoltaics via Multi-Agent Reinforcement Learning	143
P06186	Supervised EV charging Scheduling Algorithms with AMI System Coordination	144
Oral Session 24: Track 10/5 General or Related Track **Session Chair: Assoc.Prof.Dr. Pawinee Iamtrakul**		145
P05877	Provision of a smart medical and wellness travel program for hemodialysis patients	146
P06030	Government Approaches to Requirements Gathering in Smart Cities: Lessons Learned for Southeast Asia	147
P06141	ScaleCity: Toolset for Constructing Urban Data Visualization Using 3D Printed Transparent City	148
P06155	Mapping Bangkok's Informal Transit: Geospatial Insights for Smart Mobility	149
P06161	Standalone Microgrids: A Sustainable Solution for Remote Dwellings in South Africa	150
P06219	Spatial Estimation of Carbon Emissions in a Tourist City: A Geostatistical Approach for Phuket, Thailand	151