MERCon 2015- Conference Program

Time	Auditorium	Civil Complex Lecture room 2	Civil Complex Lecture room 3	Structural PG Room	Environmental PG Room
08:00 AM	Registration				
08:30 AM		T1S1: Chemical and Process Engineering	T2S1: Power Systems, Electrical Machines and High voltage Engineering	T3S1: Energy and Mechanical Engineering Systems	T4S1: Telecommunication Systems
10:00 AM	Tea				
10:30 AM	 Inauguration of MERCon 2015: National Anthem Lighting of traditional oil lamp Welcome Speech by the Dean, Faculty of Engineering Speech by Vice Chancellor, University of Moratuwa Speech by the Chief Guest, Vidya Jyothi Prof.Dayantha Wijesekara Keynote Speech by Prof. Arjuna Madanayaka Vote of thank by Director Engineering Research Unit, University of Moratuwa 				
12:00 PM	Lunch				
01:00 PM		T1S2: Civil and Environmental Engineering	T2S2: Robotics and Control	T3S2:Transport, logistics and technology management	T4S2: Big Data and Software Engineering - I
02:30 PM	Plenary Talk- 1 by Dr. Beshan Kulapala				
03:00 PM	Plenary Talk- 2 by Prof. Samantha Hettiarachchi				
03:30 PM	Tea				
04:00 PM		T1S3: Textile and Apparel	T2S3: Machine vision and Image Processing	T3S3: Materials Science and Engineering	T4S3: Big Data and Software Engineering - II
05:30 PM	End of the Program				

T1S1: Chemical and Process Engineering

Room: Civil Complex Lecture room 2

T1S1-1 [08:30] Bio-methane Adsorption by Activated Carbon: Understanding the Potential via Characterization of Sri Lankan AC

Bhagya Herath (University of Moratuwa, Sri Lanka), Ajith de Alwis (University of Moratuwa, Sri Lanka)

T1S1-2 [08:45] A mathematical model for pyrolysis of biomass

Niranjan Fernando (University of Moratuwa, Sri Lanka), Muhammad Amin (University of Moratuwa, Sri Lanka), Mahinsasa Narayana (University of Moratuwa, Sri Lanka), Thamali Rajika Jayawickrama Kankanam Arachchige (University of Moratuwa, Sri Lanka), Asad Ullah (University of Moratuwa, Sri Lanka) and Sanath Jayasena (University of Moratuwa, Sri Lanka)

- **T1S1-3** [09:00] *Numerical modelling methods of biomass combustion in packed beds*Upuli Perera (Open University, Sri Lanka), Mahinsasa Narayana (University of Moratuwa, Sri Lanka),
- T1S1-4 [09:15] Simulation of ancient wind-driven iron smelting furnaces of Sri Lanka
 Thamali Rajika Jayawickrama Kankanam Arachchige (University of Moratuwa, Sri Lanka),
 Amila Kasunjith Kumbalatara Arachchige (University of Ruhuna, Sri Lanka), Niranjan
 Fernando (University of Moratuwa, Sri Lanka), Mahinsasa Narayana (University of
 Moratuwa, Sri Lanka), Sanjeeva Witharana (University of Ruhuna, Sri Lanka), Dasith Deshan
 Dodangoda Liyanage (University of Ruhuna, Sri Lanka)
- **T1S1-5 [09:30]** *Review of development of natural rubber/ nano clay composite* Sudarshana Jayaraj (University of Moratuwa, Sri Lanka), Shantha Egodage (University of Moratuwa, Sri Lanka) and Shantha Walpolage (University of Moratuwa, Sri Lanka)

T1S1-6 [09:45] Development of a Multi-Nutrient Fertilizer from Liquid Waste of Solar Salt Manufacturing Process

Kimal Wasalathilake (University of Moratuwa, Sri Lanka), Uditha Wijayarathne (University of Moratuwa, Sri Lanka), Poorna Vidanage (University of Moratuwa, Sri Lanka) and Anul Perera (University of Moratuwa, Sri Lanka)

T2S1: Power Systems, Electrical Machines and High Voltage Engineering

Room: Civil Complex Lecture room 3

- T2S1-1 [08:30] Automatic Governor for Tie-line Control: A Teaching Tool
 - Udayantha de Silva (University of Moratuwa, Sri Lanka), Manusha Deegala (University of Moratuwa, Sri Lanka), Muditha Karunathilake (University of Moratuwa, Sri Lanka), Sapna Kumari (University of Moratuwa, Sri Lanka), Rohan Lucas (University of Moratuwa, Sri Lanka) and Narendra de Silva (Lanka Electricity Company (pvt) Ltd, Sri Lanka)
- T2S1-2 [08:45] Appliance-Level Demand Identification Through Signature Analysis W.A.K. Dhananjaya (University of Moratuwa, Sri Lanka), S.C.J. Samarathunga (University of Moratuwa, Sri Lanka), R.M.M.R. Rathnayake (University of Moratuwa, Sri Lanka), C.I. Senanayake(University of Moratuwa, Sri Lanka) and N. Wickramarachch (University of Moratuwa, Sri Lanka)
- T2S1-3 [09:00] High Performance UPS with Nine Level Cascaded H-Bridge Inverter Dilini Darmawardana (University of Moratuwa, Sri Lanka), Thisandu Kahingala (University of Moratuwa, Sri Lanka), Chamila Karunarathna (University of Moratuwa, Sri Lanka), Naleendra Kularatne (University of Moratuwa, Sri Lanka) and Karunadasa J.P. (University of Moratuwa, Sri Lanka)
- **T2S1-4** [09:15] *Designing a Microgrid Test System for Transient Analysis*Lidula Widangamaarachchige (University of Moratuwa, Sri Lanka), Melunndi Nishshanka (University of Moratuwa, Sri Lanka), Salinda Wijesundara (University of Moratuwa, Sri Lanka), Dilshan Wijemanna and Nipuna Weerakkody
- T2S1-5 [09:30] Multi-Agent System Based Micro-Grid Control

Niranga Dinushi (University of Moratuwa, Sri Lanka), Safnas Kariapper (University of Moratuwa, Sri Lanka), Gayashan Dasun (University of Moratuwa, Sri Lanka), Kasun Harshan (University of Moratuwa, Sri Lanka), Pubudu Srimal (University of Moratuwa, Sri Lanka) and Udayanga Hemapala (University of Moratuwa, Sri Lanka)

T2S1-6 [09:45] Development of a Transformer Design Optimisation Tool

Dinusha Rupasinghe (University of Moratuwa, Sri Lanka), Gayantha Rajapaksha (University of Moratuwa, Sri Lanka), Waruna Amarasinghe (University of Moratuwa, Sri Lanka), Kelum Kumara (University of Moratuwa, Sri Lanka) and Anura Wijayapala (University of Moratuwa, Sri Lanka)

T3S1: Energy and Mechanical Engineering Systems

Room: Structural PG Room

T3S1-1 [08:30] Design And Development Of A Flexible Fixturing System For Handling Irregular Shaped Components

Ishanga Rukshan (University of Moratuwa, Sri Lanka), Nisanka Chaminie (University of Moratuwa, Sri Lanka), Dasun Madushan (University of Moratuwa, Sri Lanka) and Nirosh Jayaweera (University of Moratuwa, Sri Lanka)

T3S1-2 [08:45] Steady State Performance Variation of Domestic Refrigerators Under Different Ambient Conditions of Sri Lanka

Kasun Anjana Hewa Matarage (University of Moratuwa, Sri Lanka), P.H. Viraj Nimarshana (University of Moratuwa, Sri Lanka) and R.A. Attalage (University of Moratuwa, Sri Lanka)

T3S1-3 [09:00] A techno-economic analysis for an integrated solar PV/T system with thermal and electrical storage – case study

A. U. C. D. Athukorala (University of Moratuwa, Sri Lanka), W. J. A. Jayasuriya (University of Moratuwa, Sri Lanka), S. Ragulageethan (University of Moratuwa, Sri Lanka), A. T. D. Perera (University of Moratuwa, Sri Lanka), M. P. G. Sirimanna (University of Moratuwa, Sri Lanka) and R. A. Attalage (University of Moratuwa, Sri Lanka)

T3S1-4 [09:15] Potential of Plug Flow Digesters for Biogas Production in the Sri Lankan Domestic Context

W.A.S. Hasangika (University of Moratuwa, Sri Lanka), S. Jaanuvi (University of Moratuwa, Sri Lanka), H.P. Karunathilake (University of Moratuwa, Sri Lanka) and M.M.I.D. Manthilake (University of Moratuwa, Sri Lanka)

T3S1-5 [09:30] Design and Simulation of a MEMS Based Dual Axis Capacitive Accelerometer

V.C. Jayanetti (University of Moratuwa, Sri Lanka), W.A.D.M. Jayathilaka (University of Moratuwa, Sri Lanka), K.I. Talawatta (University of Moratuwa, Sri Lanka) and Y.W.R. Amarasinghe (University of Moratuwa, Sri Lanka)

T4S1: Telecommunication Systems

Room: Environmental PG Room

T4S1-1 [08:30] Low Cost Fiber Optic Teaching Aid with Wide Dynamic Range Optical Power Meter and Bandwidth Analyzer

Yasantha Samarawickrama (Sri Lanka Institute of Information Technology, Sri Lanka) and Rohana Thilakumara (Sri Lanka Institute of Information Technology, Sri Lanka)

T4S1-2 [08:45] Modeling of Optical Carrier Recovery using Four Wave Mixing Technique for Binary Phase Shift Keying Systems

Lakmini Malasinghe (Sri Lanka Institute of Information Technology, Sri Lanka) and Ruwan Weerasuriya (University of Moratuwa, Sri Lanka)

T4S1-3 [09:00] An Overview of Multi-Dimensional RF Signal Processing for Array Receivers

Arjuna Madanayake (University of Akron, United States) Chamith Wijenayake (The University of New South Wales, Austrailia), Leonid Belostotski (University of Calgary, Canada) and Len Bruto (University of Calgary, Canada)

T4S1-4 [09:15] Multi-Beam 8x8 RF Aperture Digital Beamformers Using Multiplierless 2-D FFT Approximations

Sunera Kulasekera (University of Akron, United States), Arjuna Madanayake (University of Akron, United States), Renato Cintra (Universidade Federal de Pernambuco, Brazil), Dora Suarez (Universidade Federal de Pernambuco, Brazil), Fabio Bayer (Universidade Federal de Santa Maria, Brazil) and Chamith Wijenayake (The University of New South Wales, Austrailia)

T4S1-5 [09:30] Aperture-Array Directional Sensing using 2-D Beam Digital Filters with Doppler-Radar Front-Ends

Tharindu Randeny (University of Akron, United States), Arjuna Madanayake (University of Akron, United States), Arindam Sengupta (University of Akron, United States), Changzhi Li (Texas Tech University, United States) and Yiran Li(Texas Tech University, United States)

T1S2: Civil and Environmental Engineering

Room: Civil Complex Lecture room 2

T1S2-1 [13:00] Climate Change Adapatation: A Hydraulic Model Study to Improve the Spillway Discharge of Giritale Reservoir.

Vidura Krishantha (Ministry of Irrigation, Sri lanka) and Sunil Wickramasuriya (University of Moratuwa, Sri Lanka)

T1S2-2 [13:15] Hydraulic Performance of 'HOBO' units

M. G. N. Odara (University of Moratuwa, Sri Lanka), S. S. L. Hettiarachchi (University of Moratuwa, Sri Lanka) and P. D. Mirihagalla (URS, United Kingdom)

T1S2-3 [13:30] A Deterministic Hazard Assessment for Storm Surge Induced Flooding in the City of Chilaw

Krishani Marasinghe (University of Peradeniya, Sri Lanka) and Janaka Wijetunge (University of Peradeniya, Sri Lanka)

T1S2-4 [13:45] Introduction of Flap Gates for Anicuts in Wet Zone

Mahinsasa Narayana (University of Moratuwa, Sri Lanka), Kapila Pieris (NERD Center, Sri Lanka), Prabath Vitharana (Department of Agrarian Development, Sri Lanka), Upuli Perera (The Open University, Sri Lanka) and Suraj Perera (Department of Agrarian Development, Sri Lanka)

T1S2-5 [14:00] Behaviour of nailed timber box beams

M.T.P. Hettiarachchi (University of Moratuwa, Sri Lanka)

T2S2: Robotics and Control

Room: Civil Complex Lecture room 3

T2S2-1 [13:00] An Efficient Distributed Data Correspondence Scheme for Multi-Robot Relative Localization

Oscar De Silva (Memorial University of Newfoundland, Canada), George K. I. Mann (Memorial University of Newfoundland, Canada) and Raymond G. Gosine (Memorial University of Newfoundland, Canada)

T2S2-2 [13:15] 3D Environmental Force:Position Impedance Variation for Different Motion Parameters

R. M. Maheshi Ruwanthika (University of Moratuwa, Sri Lanka) and A. M. Harsha S. Abeykoon (University of Moratuwa, Sri Lanka)

T2S2-3 [13:30] Identifying the Cruising Dynamics of a Medium Scale UAV I: Longitudinal Dynamics

Chamika Gamage (University of Moratuwa, Sri Lanka), Senaka Samarasekera (University of Moratuwa, Sri Lanka), Anuruddha Tennakoon (University of Moratuwa, Sri Lanka) and Rohan Munasinghe (University of Moratuwa, Sri Lanka)

T2S2-4 [13:45] Interpreting Fuzzy Linguistic Information in User Commands by Analyzing Movement Restrictions in The Surrounding Environment

M. A. Viraj J. Muthugala (University of Moratuwa, Sri Lanka) and A. G. Buddhika P. Jayasekara (University of Moratuwa, Sri Lanka)

T2S2-5 [14:00] Comparison of Stabilizing NMPC Designs for Wheeled Mobile Robots: an Experimental Study

Mohamed W. Mehrez (Memorial University of Newfoundland, Canada), George K. I. Mann (Memorial University of Newfoundland, Canada) and Raymond G. Gosine (Memorial University of Newfoundland, Canada)

T2S2-6 [14:15] Hybrid Myoelectric Control Systems for Upper Limb Prosthesis

D.G.K. Madusanka (University of Moratuwa, Sri Lanka), L.N.S. Wijesinghe (University of Moratuwa, Sri Lanka), R.A.R.C. Gopura (University of Moratuwa, Sri Lanka), Y.W.R. Amarasinghe (University of Moratuwa, Sri Lanka) and G.K.I. Mann (Memorial University of Newfoundland, Canada)

T3S2: Transport, logistics and technology management

Room: Structural PG Room

T3S2-1 [13:00] Estimation of Demand for Bus Rapid Transit

Janaka Weerawardana (University of Moratuwa, Sri Lanka) and Amal S. Kumarage (University of Moratuwa, Sri Lanka)

T3S2-2 [13:15] Scheduling Methodology to Minimize Random Customer Arrival

Heshan Kothalawala (University of Moratuwa, Sri Lanka) and Nishal Samarasekera (University of Moratuwa, Sri Lanka)

T3S2-3 [13:30] An approach to evaluate interrelationships among lean attributes of manufacturing systems: A case study based on lean enterprises

Duleepa Srinath (University of Moratuwa, Sri Lanka)

T3S2-4 [13:45] Impact of greening the supply chain on economic performance and competitiveness of manufacturing companies in Sri Lanka

Tharindu Samaranayake (University of Moratuwa, Sri Lanka) and Shirekha Layangani (University of Moratuwa, Sri Lanka)

T3S2-4 [14:00] Evaluation of main factors affecting the choice of a freight forwarder: A Sri Lankan exporter's perspective

M.D. Ishani Maheshika and Baudhi Abeysekara

T3S2-5 [14:15] Recommendations for successful SAP implementation in Sri Lankan business industries

Niroge Thavendran and Mangala Perera

T4S2: Big Data and Software Engineering - I

Room: Environmental PG Room

T4S2-1 [13:00] Web User Profiling using Hierarchical Clustering with Improved Similarity Measure

Nilani Algiriyage (University of Moratuwa, Sri Lanka), Sanath Jayasena (University of Moratuwa, Sri Lanka) and Gihan Dias (University of Moratuwa, Sri Lanka)

T4S2-2 [13:15] CDME - Crowd-Sourced Data Mapping Engine

Sathira Ruwanpathirana (University of Moratuwa, Sri Lanka) and Indika Perera (University of Moratuwa, Sri Lanka)

T4S2-3 [13:30] Crime Analytics: Analysis and Prediction of Crimes Through Newspaper Articles

Isuru Jayaweera (University of Moratuwa, Sri Lanka) , Chamath Sajeewa (University of Moratuwa, Sri Lanka) , Sampath Liyanage (University of Moratuwa, Sri Lanka) , Tharindu Wijewardane (University of Moratuwa, Sri Lanka) , Indika Perera (University of Moratuwa, Sri Lanka) and Adeesha Wijayasiri (University of Florida, United States)

T4S2-3 [13:45] Computing Requirements of Sri Lankan Scientific Community

Asanka Dias (University of Colombo, Sri Lanka) and H M N Dilum Bandara (University of Moratuwa, Sri Lanka)

T4S2-4 [14:00] Scientific Data Cataloging System

Supun Nakalanda (University of Moratuwa, Sri Lanka), Sachith Withana (University of Moratuwa, Sri Lanka), Dinu Kumarasiri (University of Moratuwa, Sri Lanka), Hirantha Jayawardena (University of Moratuwa, Sri Lanka), Dilum Bandara (University of Moratuwa, Sri Lanka), Srinath Perera (WSO2 Inc., Sri lanka), Suresh Marru (Indiana University, United States) and Sudhakar Pamidighantam (Indiana University, United States)

T4S2-6 [14:15] Cloud Images Capturing System for Solar Power Level Prediction

Asanka S. Rodrigo (University of Moratuwa, Sri Lanka), K. H. E. Perera (University of Moratuwa, Sri Lanka), H. M. S. Priyadharshana (University of Moratuwa, Sri Lanka), V. G. C. Priyanka (University of Moratuwa, Sri Lanka) and R. A. R. A. Ranasinghe (University of Moratuwa, Sri Lanka)

T1S3: Textile and Apparel

Room: Civil Complex Lecture room 2

T1S3-1 [16:00] Mathematical Analysis of Startup Mark in Elastic Tape on a Narrow Fabric Loom

Thilanka Dayaratne (University of Moratuwa, Sri Lanka), Ranishka Premakumara (University of Moratuwa, Sri Lanka), Thanura Perera (University of Moratuwa, Sri Lanka) and Stephan Prince (University of Moratuwa, Sri Lanka)

T1S3-2 [16:15] Modification of Thermal Conductivity of Cotton Fabric Using Graphene

Nishadi Perera (University of Moratuwa, Sri Lanka), Shiran Perera (University of Moratuwa, Sri Lanka), Yasith Hareendra (University of Moratuwa, Sri Lanka) and Lahiru Somaweera (University of Moratuwa, Sri Lanka)

T1S3-3 [16:30] Effect of particle size reduction on the performance of sized warp yarns Thilini Paranavithana (University of Moratuwa, Sri Lanka), Upul Dissanayaka (University of Moratuwa, Sri Lanka), Wathsala Premarathna (University of Moratuwa, Sri Lanka) and Anees Atambawa (University of Moratuwa, Sri Lanka)

T1S3-4 [16:45] How the performance measurement of supply chain contributes in achieving organisational objectives of Sri Lankan apparel organisations

Uditha Narawita (University of Moratuwa, Sri Lanka) and Shirekha Layangani (University of Moratuwa, Sri Lanka)

T2S3: Machine vision and Image Processing

Room: Civil Complex Lecture room 3

T2S3-1 [16:00] Region Growing Segmentation Method for Extracting Vessel Structures from Coronary Cine-angiograms

Hemantha Kulathilake (University of Moratuwa, Sri Lanka), Lochandaka Ranatunga (University of Moratuwa, Sri Lanka), Godvin Constantine (University of Colombo, Sri Lanka) and Nor Aniza Abdullah (University of Malaya, Malaysia)

T2S3-2 [16:15] Plant identification for Android using SIFT features of leaf images

H.A. Chathura Priyankara (University of Moratuwa, Sri Lanka) and D.K. Withanage (University of Moratuwa, Sri Lanka)

T2S3-3 [16:30] Geometrically Constrained Object Tracking in Non-Overlapping Calibrated Cameras

Dileepa Jayamanne (University of Moratuwa, Sri Lanka) and Ranga Rodrigo (University of Moratuwa, Sri Lanka)

T2S3-4 [16:45] Image Filtering with MapReduce

Tharindu Gamage (University of Moratuwa, Sri Lanka), Ranga Rodrigo (University of Moratuwa, Sri Lanka), Jayathu Samarawickrama (University of Moratuwa, Sri Lanka) and Ajith Pasqual (University of Moratuwa, Sri Lanka)

T2S3-5 [17:00] Interactive Robotic Head for Neck Exercises

Tirantha Bandara (University of Moratuwa, Sri Lanka), Suchira Athuraliya (University of Moratuwa, Sri Lanka), Harshani Amanda(University of Moratuwa, Sri Lanka), A.G. Buddhika P. Jayasekara (University of Moratuwa, Sri Lanka), Ashani Muthumala (University of Moratuwa, Sri Lanka) and Sapiri Dahanayake (University of Moratuwa, Sri Lanka)

T2S3-6 [17:15] Transforming a Wireless Biotelemetry System to an Implantable System

Karu Esselle (Macquarie University, Australia)

T3S3: Materials Science and Engineering

Room: Structural PG Room

T3S3-1 [16:00] Improvement of physico-mechanical properties of calcium carbonate filled natural rubber and low density polyethylene blends with titanate coupling agent

Wicramage Don Manjula Sampath (Rubber Research Institute, Sri Lanka), Shantha Egodage (University of Moratuwa, Sri Lanka) and Dilhara Edirisinghe (Rubber Research Institute, Sri Lanka)

T3S3-2 [16:15] Adsorption of Cd and Pb Heavy metals by Chitosan Biopolymer: Studies on Equilibrium Isotherms and Kinetics

Janitha Unagolla (University of Moratuwa, Sri Lanka) and Upali Adikary (University of Moratuwa, Sri Lanka)

T3S3-3 [16:30] The effectiveness of a synthetic hydrophilic polymer in enhancing reinforcing action of silica in carboxylated acrylonitrile butadiene rubber latex

Dilini Liyanaarachchi (University of Moratuwa, Sri Lanka) and Kalyani Liyanage (University of Moratuwa, Sri Lanka)

T4S3: Big Data and Software Engineering - II

Room: Environmental PG Room

T4S3-1 [16:00] Effectiveness of Scrum for Offshore Software Development in Sri Lanka

Chandana Ranasinghe (University of Moratuwa, Sri Lanka) and Indika Perera (University of Moratuwa, Sri Lanka)

T4S3-2 [16:15] Use of Software Metrics in Agile Software Development Process

K.V. Jeeva Padmini (University of Moratuwa, Sri Lanka), H. M. N. Dilum Bandara (University of Moratuwa, Sri Lanka) and Indika Perera (University of Moratuwa, Sri Lanka)

T4S3-3 [16:30] Establishing and Visualizing Traceability Links among Software Artefacts

Kamalabalan Karthigesu (University of Moratuwa, Sri Lanka), Thanuja Uruththirakodeeswaran (University of Moratuwa, Sri Lanka), Gitanjali Thiyagalingam (University of Moratuwa, Sri Lanka), Diunuge B. Wijesinghe (University of Moratuwa, Sri Lanka), Indika Perera (University of Moratuwa, Sri Lanka), Dulani Meedeniya (University of Moratuwa, Sri Lanka) and Dharini Balasubramaniam (School of Computer Science, University of St Andrews, UK)

T4S3-4 [16:45] Unhosted Email Client

Sashrika Waidyarathna(University of Moratuwa, Sri Lanka), Rukshan Premathunga (University of Moratuwa, Sri Lanka), Sureshkumar Kanthasamy (University of Moratuwa, Sri Lanka) and Erlilverl Kanagasabai (University of Moratuwa, Sri Lanka)

T4S3-5 [17:00] RepoZip: A Technique for Lossless Compression of Document Collections

Dinithi Sumanaweera (University of Moratuwa, Sri Lanka), Fathima Fahima Doole (University of Moratuwa, Sri Lanka), Daham Pathiraja (University of Moratuwa, Sri Lanka), Kelum Deshapriya (University of Moratuwa, Sri Lanka) and Gihan Dias (University of Moratuwa, Sri Lanka)

T4S3-6 [17:15] Effectiveness of eLearning: Grounded Theory approach

Dilrukshi Gamage (University of Moratuwa, Sri Lanka), Indika Perera (University of Moratuwa, Sri Lanka) and Shantha Fernando (University of Moratuwa, Sri Lanka)