



## Programme Schedule

### 10<sup>th</sup> International Symposium on Advances in Civil and Environmental Engineering Practices for Sustainable Development (ACEPS - 2024)

*Venue: Department of Marine Engineering and Naval Architecture - University of Ruhuna  
No: 378, Matara Road, Galle*

7.30-8.30	<b>Registration</b>
8.30-8.35	<b>Lighting of the Oil Lamp</b>
8.35-8.45	<b>Welcome Address</b> Dr. Chithral Ambawatte, Dean, Faculty of Engineering, University of Ruhuna
8.45-9.00	<b>Address by the Chief Guest</b> Senior Prof. Sujeewa Amarasena, Vice Chancellor, University of Ruhuna
9.00-9.05	<b>Messages from the Sponsors</b>
9.05-9.35	<b>Keynote Address 1</b> Prof. Ken Kawamoto, Saitama University, Japan
9.35-9.40	<b>Messages from the Sponsors</b>
9.40-9.50	<b>Address by the Guest of Honor</b> Senior Prof. Saman Chandana Ediriweera, Deputy Vice Chancellor, University of Ruhuna
9.50 - 9.55	<b>Vote of Thanks</b> Dr. Ruwan Appuhamy, Symposium Co-chair, Head/Department of Civil and Environmental Engineering, University of Ruhuna
9.55-10.00	<b>National Anthem</b>
10.00-10.30	<b>Refreshments at the Cafeteria</b>
<b>Technical Program - Auditorium, MNLR-01, MNLR-02, MNLR-03</b>	
10.30-12.00	<b>Technical Session 1</b>
12.00-13.30	<b>Lunch at the Cafeteria</b>
13.30-14.00	<b>Keynote Address 2</b> Prof. Yuansong Wei, Chinese Academy of Sciences
14.00-15.30	<b>Technical Session 2</b>
15.30-16.00	<b>Refreshments at the Cafeteria</b>
16.00-17.30	<b>Technical Session 3</b>
18.30 Onwards	<b>Awarding Ceremony and Symposium Dinner</b>

## Technical Session Schedule

Time	Technical Session			
8.30-10.00	<b>Inaugural Ceremony and Keynote Address 1</b> <a href="https://learn.zoom.us/j/2012021500">https://learn.zoom.us/j/2012021500</a> <i>Meeting ID: 201 202 1500</i>			
10.00-10.30	<b>Refreshments at the Cafeteria</b>			
10.30-12.00	<b>Technical Session 01</b>			
	<b>Session A1</b> Infrastructure Planning and Management-I <i>MNLR 01</i>	<b>Session A2</b> Construction Materials <i>MNLR 02</i>	<b>Session A3</b> Environmental Engineering <i>MNLR 03</i>	
12.00-13.30	<b>Lunch at the Cafeteria</b>			
13.30-14.00	<b>Keynote Address 2</b>			
14.00-15.30	<b>Technical Session 02</b>			
	<b>Session B1 - Online</b> Infrastructure Planning and Management-II <i>MNLR 01</i> <a href="https://learn.zoom.us/j/2012021500">https://learn.zoom.us/j/2012021500</a> <i>Meeting ID: 201 202 1500</i>	<b>Session B2</b> Highway and Transportation Engineering <i>MNLR 02</i>	<b>Session B3 - Online</b> Water and Environmental Engineering-I <i>MNLR 03</i> <a href="https://learn.zoom.us/j/9192742092">https://learn.zoom.us/j/9192742092</a> <i>Meeting ID: 919 274 2092</i>	<b>Session B4</b> Construction and Project Management <i>Auditorium</i>
15.30-16.00	<b>Refreshments at the Cafeteria</b>			
16.00-17.30	<b>Technical Session 03</b>			
	<b>Session C1</b> Geotechnical Engineering <i>MNLR 01</i>	<b>Session C2 - Online</b> Structural Engineering and Construction Management <i>MNLR 02</i> <a href="https://learn.zoom.us/j/9192742092">https://learn.zoom.us/j/9192742092</a> <i>Meeting ID: 919 274 2092</i>	<b>Session C3</b> Water and Environmental Engineering-II <i>MNLR 03</i>	
18.30 Onwards	<b>Awarding Ceremony and Symposium Dinner (at Hasara Hotel, No.1, Wakunugoda Road, Galle)</b>			

## Technical Session 1

<b>Technical Session</b> - A1 - (10.30-12.00hrs) <b>Venue</b> - MNLR 01 <b>Title of the session</b> - <i>Infrastructure Planning and Management-I</i> <b>Session Co-chairs</b> - Prof. Kushan Wijesundara and Dr. Madhavi Migunthenna		
Time	Paper Title and Author Details	Page
10.30 -10.45	<b>ACEPS2024-MAT01</b> <b>Investigation of pervious concrete with gap-grading of aggregates</b> <i>V. Pravinjan, A. Janarth, N. Sathiparan and D.N. Subramaniam</i>	12
10.45 - 11.00	<b>ACEPS2024-STRU04</b> <b>A general numerical modelling approach to assess the performance of a building subjected to blast loads</b> <i>K.L.L. Shamiranga, P.L.N. Fernando</i>	9
11.00 -11.15	<b>ACEPS2024-STRU05</b> <b>The behaviour of masonry-infilled RC frames under cyclic loading: numerical modelling using OpenSees</b> <i>P.W.P.B. Kumarasiri, J.M.R.S. Appuhamy, and G.H.M.J. Subashi De Silva</i>	10
11.15 - 11.30	<b>ACEPS2024-MAT05</b> <b>Prediction of Compressive Strength of Pervious Concrete Using Machine Learning Techniques</b> <i>S. Pratheesh, S.H.B. Wijekoon and D.N. Subramaniam</i>	16
11.30 - 11.45	<b>ACEPS2024-GEO07</b> <b>The Effect of Geotextile Encasement on the behavior of Stone Columns in Soft Soil: Laboratory Study</b> <i>W.D.I.C. Weerawardana, and N.H. Priyankara</i>	45
11.45 - 12.00	<b>ACEPS2024-GEO10</b> <b>Assessed of End Bearing Resistance of Cast In-situ Bored Piles socketed in to the weak Gneissic Rock based on Instrumented Pile Load Test</b> <i>W. H.S. Fonseka, and N.H. Priyankara</i>	48

## Technical Session 1

<b>Technical Session</b> - A2 - (10.30-12.00hrs) <b>Venue</b> - MNLR 02 <b>Title of the session</b> - <i>Construction Materials</i> <b>Session Co-chairs</b> - Prof. Thishan Jayasinghe and Dr. Janaka Perera		
Time	Paper Title and Author Details	Page
10.30 - 10.45	<b>ACEPS2024-MAT06</b> <b>An in-depth analysis of the impact of Papercrete technology in the field of construction: An extensive review</b> <i>Isma Lebbe Mohamed Sabri</i>	17
10.45 - 11.00	<b>ACEPS2024-MAT08</b> <b>Rice husk ash as a partial substitute for rural road construction in Sri Lanka: an overview</b> <i>D.G.I.S. Deegoda, P.H. Samarajeewa, H.A.D.S. Buddika and H.D. Yapa</i>	19
11.00 -11.15	<b>ACEPS2024-MAT09</b> <b>Investigation of the Mechanical Characteristics of Cement Mortar Produced with Blended Sea-sand</b> <i>P.R.P.U.B. Abeyaratne, F.A. Izmi, H.M.S.A. Koswaththa, H.A.D. Samith Buddika, and H.D. Yapa</i>	20
11.15 - 11.30	<b>ACEPS2024-MAT10</b> <b>Assessing the Performance of hip and Crumb Rubber Concrete Reinforced with Steel Fibers Recovered from Waste Tires</b> <i>A.B.D.I. Dissanayaka, B.G.V. Sanjaya, and J.M.R.S. Appuhamy</i>	21
11.30 -11.45	<b>ACEPS2024-MAT11</b> <b>Investigation of the Effect of Reused Tyre Rubber (RTR) &amp; Reused Tyre Steel Fiber (RTSF) on Static and Dynamic Properties of Concrete</b> <i>S.A.C. Padmasiri and J.M.R.S. Appuhamy</i>	22
11.45 - 12.00	<b>ACEPS2024-MAT12</b> <b>Investigate the behaviour of drying shrinkage on recycled PET fiber concrete exposed to natural environment conditions</b> <i>R. Thanuya, Sudhira De Silva, S.M.D.V. Suraweera, Champika Ellawala, Chamila Gunasekara, and David W. Law</i>	23

## Technical Session 1

<b>Technical Session</b> - A3 - (10.30-12.00hrs) <b>Venue</b> - MNLR 03 <b>Title of the session</b> - <i>Environmental Engineering</i> <b>Session Co-chairs</b> - Prof. Jagath Manatunge and Eng. Danesh Gunathilake		
Time	Paper Title and Author Details	Page
10.30 - 10.45	<i>ACEPS2024-ENV04</i> <b>A Reliable and Simple Approach to Enumerate Escherichia coli (E.coli) Concentrations in Wastewater Samples by Measuring <math>\beta</math>-d Glucuronidase (GUS) Activities via a Microplate</b> <i>H.A.M. Randula, M.N.M. Shayan, W.M.K.R.T.W. Bandara, G.G.T. Chaminda, and H. Satoh</i>	27
10.45 - 11.00	<i>ACEPS2024-ENV05</i> <b>The Fate and Behavior of Pathogens in the Soil Near On-site Sanitation Systems</b> <i>N. Sinthuja, G.G. Tushara Chaminda, M. Otaki, and Y. Otaki</i>	28
11.00 -11.15	<i>ACEPS2024-ENV06</i> <b>Unveiling the Bacterial Landscape of Urban Waters in Sri Lanka: Diversity Patterns and Environmental Associations</b> <i>S. Shaseevarajan, Mohomed Shayan, W.M.K.R.T.W. Bandara, G.G. Chaminda Tushara, and Hisashi Satoh</i>	29
11.15 -11.30	<i>ACEPS2024-ENV07</i> <b>Hydrological Interactions and Water Quality Assessment in Village Tank Cascade Systems (VTCs) in Sri Lanka</b> <i>S. Indika, D. Hu, Y. Wei, I. Yapabandara, S. Athauda, A. Randika, S. Prasad, T. Cooray, M. Makehelwala, H. Zhong, Y. Wang, K.B.S.N. Jinadasa, S.K. Weragoda, and R. Weerasooriya</i>	30
11.30 - 11.45	<i>ACEPS2024-ENV08</i> <b>Spatiotemporal Assessment of Water Pollution for Beira Lake, Sri Lanka</b> <i>Sangeeth Prasad, Yuansong Wei, Tushara Chaminda, Tharindu Ritigala, Lijun Yu, K.B.S.N. Jinadasa, H.M.S. Wasana, Suresh Indika, IsuruYapabandara, Dazhou Hu, Madhubhashini Makehelwala, Sujithra, K.Weragoda, Jianfeng Zhu, and Zongke Zhang</i>	32

## Technical Session 2

<b>Technical Session</b> - B1 - (14.00-15.30hrs) <b>Venue</b> - MNLR 01 <b>Title of the session</b> - <i>Infrastructure Planning and Management-II (Online)</i> <a href="https://learn.zoom.us/j/2012021500">https://learn.zoom.us/j/2012021500</a> <i>Meeting ID: 201 202 1500</i>		
<b>Session Co-chairs</b> - Dr. K.H.S.M. Sampath and Dr. S.K. Navaratnarajah		
Time	Paper Title and Author Details	Page
14.00 - 14.15	<b>ACEPS2024-MAT07</b> <b>A Review on the Synergistic Behaviour of Recycled Waste Plastic and Construction Demolition Waste on the Performance of Concrete</b> <i>T. Abirami, C.S. Bandara, H.D. Yapa, and P.B.R. Dissanayake</i>	18
14.15 - 14.30	<b>ACEPS2024-GEO01</b> <b>Improvement of Gravel roads against erosion caused by heavy rain using Bagasse ash and Spent Wash</b> <i>P.P.J Kishok, and N.H. Priyankara</i>	39
14.30 - 14.45	<b>ACEPS2024-GEO09</b> <b>Effect of Degree of Saturation on Pullout Resistance of Soil Nails - a Case Study</b> <i>M.G.T.M. Chandrapala, and N.H. Priyankara</i>	47
14.45 - 15.00	<b>ACEPS2024-STRU06</b> <b>Investigation of the effectiveness of strengthening by injecting grout to walls in heritage buildings in Galle Fort Sri Lanka</b> <i>W.A.S.K. Weerasekara, J.M.R.S. Appuhamy, S.W. Senaviratne, and T.P.A.L Piyasena</i>	11
15.00 - 15.15	<b>ACEPS2024-MGT02</b> <b>Use of contingency to control the cost overrun in Sri Lankan high-rise building projects</b> <i>W.M.H.N. Weerasinghe, and D.M.S. Jayasuriya</i>	55
15.15 - 15.30	<b>ACEPS2024-TRAN01</b> <b>Significance of the Service Quality Attributes of Public Bus Transit in Various Trip Purposes of Users: A Case Study of Batticaloa District</b> <i>M. Kumaresoaran, and A.G.H.J. Edirisinghe</i>	59

## Technical Session 2

<b>Technical Session</b> - B2 - (14.00-15.00hrs) <b>Venue</b> - MNLR 02 <b>Title of the session</b> - <i>Highway and Transportation Engineering</i> <b>Session Co-chairs</b> - Dr. Samal Dharmarathna and Eng. Ilham Jazeel		
Time	Paper Title and Author Details	Page
14.00 - 14.15	<b>ACEPS2024-TRAN02</b> <b>Comparative analysis of Multinomial logit (MNL) and Nested logit (NL) modeling approaches for mode choice decisions</b> <i>R.L.N. Vidurangana, H.A.R.N. Vindyani, and W.R.S.S. Dharmarathna</i>	60
14.15 - 14.30	<b>ACEPS2024-TRAN03</b> <b>Model sensitivity and stability of MNL approach for Sri Lankan travelers' mode choice decisions</b> <i>U.H.D. Akshani, W.M.L.P. Wijesundara, and W.R.S.S. Dharmarathna</i>	61
14.30 - 14.45	<b>ACEPS2024-TRAN04</b> <b>Identification of accident black spots to improve the safety highways.</b> <i>M.D.S.M. Karunarathna, A.G.H.J. Edirisinghe, and W.P.A.M. Pathirana</i>	62
14.45 - 15.00	<b>ACEPS2024-TRAN05</b> <b>Priori and posteriori use of gender data in conjoint analysis in determining the pedestrian level of service on sidewalks</b> <i>T.M. Rengarasu, and S.M.G.P.S. Karunarathna</i>	63

## Technical Session 2

<b>Technical Session</b> - B3 - (14.00-15.30hrs) <b>Venue</b> - MNLR 03 <b>Title of the session</b> - <i>Water and Environmental Engineering (Online)</i> <a href="https://learn.zoom.us/j/9192742092">https://learn.zoom.us/j/9192742092</a> <b>Meeting ID: 919 274 2092</b>		
<b>Session Co-chairs</b> - Prof. Lalith Rajapakse and Dr. Nandika Migunthenna		
Time	Paper Title and Author Details	Page
14.00 - 14.15	<b>ACEPS2024-HYD01</b> <b>Investigation and Modelling of Coastal Water Quality of Arugam Bay Beach</b> <i>A.C.A. Suja, M.S.M. Haris, A.M.S. Thuram</i>	49
14.15 - 14.30	<b>ACEPS2024-HYD02</b> <b>Investigating Flow Patterns in Rantambe Reservoir Through Two-dimensional Hydrodynamic Modelling</b> <i>T. Jeyakaran, A.C.A. Suja, T. Vithushan, and M.I. Ilham Jazeel</i>	50
14.30 - 14.45	<b>ACEPS2024-HYD05</b> <b>Runoff Simulation in Different Flow Regimes by Mike 11 NAM Model: An Application to Gin Catchment, Sri Lanka</b> <i>N.A.S. Nimanthika, and T.N. Wickramaarachchi</i>	53
14.45 - 15.00	<b>ACEPS2024-ENV09</b> <b>Assessing Groundwater Evolution in Response to Seawater Intrusion in the Mannar District of Sri Lanka through Geochemical Analysis</b> <i>Samadhi Athauda, Yunwen Wang, Zhineng Hao, Suresh Indika, Isuru Yapabandara, Sujithra K. Weragoda, Jingfu Liu, and Yuansong Wei</i>	34
15.00 - 15.15	<b>ACEPS2024-ENV10</b> <b>The Hydrochemical Characteristics and Influencing Factors of Groundwater in North Central Province of Sri Lanka</b> <i>Dazhou Hu, Suresh Indika, and Yuansong Wei</i>	36
15.15 - 15.30	<b>ACEPS2024-ENV11</b> <b>Optimizing Rubber Industry Wastewater Treatment via Integrated AnMBR and A/O MBR Systems: Performance Assessment, Membrane Fouling Dynamics, and Microbial Community Transformations</b> <i>Ishanka Wimalaweera, Fumin Zuo, Qihe Tang, Tharindu Ritigala, Yawei Wang, Hui Zhong, Rohan Weerasooriya, Shameen Jinadasa, Sujithra Weragoda, and Yuansong Wei</i>	37



## Technical Session 2

<b>Technical Session</b> - B4 - (14.00-15.00hrs) <b>Venue</b> - Auditorium <b>Title of the session</b> - <i>Construction and Project Management</i> <b>Session Co-chairs</b> - Prof. Chintha Jayasinghe and Eng. Danushka Munasinghe		
Time	Paper Title and Author Details	Page
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14.15 - 14.30	<b>ACEPS2024-MGT03</b> <b>Opportunities for using Building Automation for Green Buildings</b> <i>W.G.M.V. Gamage, S. M. Pathirana, M.T.A Zacki, and H.K.I.S. Lakmal</i>	56
14.30 - 14.45	<b>ACEPS2024-MGT04</b> <b>Digital Twin and Internet of things Application in Construction Safety Management: A Systematic Literature Review</b> <i>P.H.T. Maduranga, G.H.M.J.S. De Silva, and R. Edirisinghe</i>	57
14.45 - 15.00	<b>ACEPS2024-MGT05</b> <b>Utilization of Personal Protective Equipment in Construction Sites in Sri Lanka</b> <i>S.M.S.H.K. Samarakoon, S.W. Senaviratne, and S.N. Malkanthi</i>	58

### Technical Session 3

<b>Technical Session</b> - C1 - (16.00-17.30hrs) <b>Venue</b> - MNLR 01 <b>Title of the session</b> - <i>Geotechnical Engineering</i> <b>Session Co-chairs</b> - Prof. Udeni Nawagamuwa and Dr. Praneeth Wickramarachchi		
Time	Paper Title and Author Details	Page
16.00 - 16.15	<i>ACEPS2024-GEO02</i> <b>Stabilization of Subgrade Using Geosynthetics</b> <i>U.D.M. Kumara, and N.H. Priyankara</i>	40
16.15 - 16.30	<i>ACEPS2024-GEO03</i> <b>Analyzing slope rectification strategies using the shear strength reduction method</b> <i>R.T. Ranasinghe and K.H.S.M. Sampath</i>	41
16.30 -16.45	<i>ACEPS2024-GEO04</i> <b>Investigation on Shear Strength Development of Peat Soil Stabilize with Quarry Dust for High-Rise Building Construction</b> <i>H.D.S Peiris, and D.D. Dias</i>	42
16.45 - 17.00	<i>ACEPS2024-GEO05</i> <b>Numerical simulation of non-linear behaviour of elastomeric USPs and GridUSPs in ballasted tracks using hyper-elastic materials</b> <i>H.G.S. Mayuranga, and S. K. Navaratnarajah</i>	43
17.00 -17.15	<i>ACEPS2024-GEO06</i> <b>Optimum Soil-Cement-Bentonite (SCB) cutoff wall to mitigate seepage and gain strength in an Earthen dam.</b> <i>M.S. Umar, and N. H. Priyankara</i>	44
17.15 - 17.30	<i>ACEPS2024-GEO08</i> <b>Performance of Soil - Cement - Bentonite (SCB) Trench Cut-off Wall - a Case Study at North Western Province Canal Project (NWPCP)</b> <i>R.K.P.C.B. Mudalige, N.H. Priyankara, and S.H.T. de Silva</i>	46

### Technical Session 3

<b>Technical Session</b> - C2 - (16.00-17.30hrs) <b>Venue</b> - MNLR 02 <b>Title of the session</b> - <i>Structural Engineering and Construction Materials (Online)</i> <a href="https://learn.zoom.us/j/9192742092">https://learn.zoom.us/j/9192742092</a> <i>Meeting ID: 919 274 2092</i>		
<b>Session Co-chairs</b> - Prof. Ruwan Weerasekara and Dr. Samith Budhdhika		
Time	Paper Title and Author Details	Page
16.00 - 16.15	<b>ACEPS2024-STRU01</b> <b>Design - informed optimization of 2D skeletal structures using neural networks</b> <i>J.A.N.N. Jayaweera, and H.M.S.T. Herath</i>	6
16.15 - 16.30	<b>ACEPS2024-STRU02</b> <b>Seismic Performance of Steel Hollow Box Column under Fire Loading for Different Slenderness Ratio: A Numerical Approach</b> <i>Y.P.K.M.W.N. Kanakarathna, J.A.R.D. Jayasooriya and J.A.S.C. Jayasinghe</i>	7
16.30 - 16.45	<b>ACEPS2024-STRU03</b> <b>Effect of bolt preloading on the rotational stiffness of bolted connections</b> <i>D.A.S.T. Dharmawansa, and H.M.S.T. Herath</i>	8
16.45 - 17.00	<b>ACEPS2024-MAT02</b> <b>Characterization of porosities of pervious concrete</b> <i>M. Arunan, A. Janarth, K. Joseph Dharmar, and D. N. Subramaniam</i>	13
17.00 - 17.15	<b>ACEPS2024-MAT03</b> <b>Investigation of aggregates shape on pervious concrete properties using classification</b> <i>K. Virupashan, N. Ahilash, N. Sathiparan, and D. N. Subramaniam</i>	14
17.15 - 17.30	<b>ACEPS2024-MAT04</b> <b>Prediction of Impact of Aggregate Shape on Pervious Concrete Compressive Strength</b> <i>J. Shobijan, N. Ahilash, S.H.B. Wijekoon, and D.N. Subramaniam</i>	15

### Technical Session 3

<b>Technical Session</b> - C3 - (16.00-17.30hrs) <b>Venue</b> - MNLR 03 <b>Title of the session</b> - <i>Water and Environmental Engineering-II</i> <b>Session Co-chairs</b> - Dr. Nadeeka Migunthenna and Dr. Daniel Subramaniam		
Time	Paper Title and Author Details	Page
16.00 - 16.15	<b>ACEPS2024-ENV01</b> <b>Removal of Arsenic Contaminated Water by Continuous Column Adoption using Laterite Grains as a Low-Cost Adsorbent</b> <i>Indraji Madhushan Nayaka Bandara, Akihiro Matsuno, Kengo Nakamura, and Ken Kawamoto</i>	24
16.15 - 16.30	<b>ACEPS2024-ENV02</b> <b>Evaluating Clogging Effect in Vertical Flow Constructed Wetlands with Different HLRs</b> <i>W.A.T. Sachinika., H.A. Panagoda, and G.M.P.R. Weerakoon</i>	25
16.30 - 16.45	<b>ACEPS2024-ENV03</b> <b>Evaluating the Efficiency of Spent Alum Sludge as a Phosphorus Removal Agent in Synthetic Wastewater</b> <i>R.N. Mudalige, Jagath Manatunge, Mahesh Jayaweera, and Kasun Zoysa</i>	26
16.45 - 17.00	<b>ACEPS2024-HYD03</b> <b>Evaluation of the SWAT Model's Performance in Simulating the Catchment Hydrology across Upper Nilwala Catchment, Sri Lanka</b> <i>D.M.K.P. Dissanayake, and T.N. Wickramaarachchi</i>	51
17.00 - 17.15	<b>ACEPS2024-HYD04</b> <b>Laboratory Analysis of Identifying Influence of Vegetation, Bed Type, River Regulation on Microplastic Transportation in Open Channels</b> <i>D.D.D.S. Wijeratna, A. Zakib Fazil, and Pattiyage I.A. Gomes</i>	52