

### CE405 Project Allocation (E/19)

| Project No. | Supervisor                                  | Title                                                                                                                                                        |
|-------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C/19/01     | Dulakshi Karunasinghe                       | Statistical downscaling methods for the assessment of future rainfall in the Central Province of Sri Lanka.                                                  |
| C/19/02     | NGPB Neluwala                               | Quantifying and Reducing Head Loss in Diversion Channels: A Hydrodynamic Analysis                                                                            |
| C/19/03     |                                             | Estimation of reservoir water levels using satellite data products                                                                                           |
| C/19/04     | MMGT De Silva                               | Performance evaluation of conventional hydrological models and Artificial Neural Networks (ANNs) to simulate streamflow in a tropical Sri Lankan river basin |
| C/19/05     |                                             | Drought Analysis in a tropical river basin in Sri Lanka                                                                                                      |
| C/19/06     | DD Dias                                     | Study on the bank stability of the Deduru oya (In collaboration with the Irrigation Department, Sri Lanka)                                                   |
| C/19/07     |                                             | Empirical correlation for quantifying the force exerted by a Tsunami bore based on experimental outcomes                                                     |
| C/19/08     |                                             | Morphological evolution of Deduru oya river stretch (Irrigation Department, Sri Lanka)                                                                       |
| C/19/09     | KGN Nanayakkara                             | Analyzing ambient water quality of surface water bodies for different end-uses (Collaborator: Department of Irrigation, Sri Lanka)                           |
| C/19/10     |                                             | Novel coating materials for preventing fat, oil and grease deposition in the sewer (Collaborator: RMIT University, Australia)                                |
| C/19/11     |                                             | Optimizing the coagulation dose considering multi-factors (IIT/Kanpur, India)                                                                                |
| C/19/12     | GMPR Weerakoon (Co-supervisor GBB Herath)   | Assessment of fecal contamination of groundwater in a rural village                                                                                          |
| C/19/13     |                                             | Non-revenue water (NRW) control strategies for a selected city (Field work could be easier for boys)                                                         |
| C/19/14     |                                             | Vertical subsurface flow constructed wetlands: Optimization of land area requirement                                                                         |
| C/19/15     | WCTK Gunawardana                            | Evaluation of microplastics content in urban environment                                                                                                     |
| C/19/16     |                                             | Low cost oxygen transfer technology to treat iron and manganese                                                                                              |
| C/19/17     |                                             | Performance evaluation of drainage systems in urban and peri-urban developments                                                                              |
| C/19/18     | Dimuth Navaratna (Co-supervisor GBB Herath) | Investigating the potential of recovering bioenergy from a hybrid wastewater treatment technology                                                            |
| C/19/19     |                                             | Potential use of RO/NF concentrate/brine in concrete as a partial replacement for cement                                                                     |
| C/19/20     |                                             | Recovery of nitrogen and phosphorus from anaerobically pre-treated wastewater using struvite precipitation                                                   |
| C/19/21     | RMLD Rathnayaka                             | Eco-Friendly Cement Mortar with Water Treatment Plant Sludge (Collection of samples from water treatment plants )                                            |
| C/19/24     | KRB Herath                                  | Mechanical behavior of natural woven fiber reinforced polymer composites (Prof. RMG Rajapakshe (Department of Chemistry) and Dr. Mrs. SR Herath)             |
| C/19/26     |                                             | Mechanical behaviour and testing methods of laminated natural fiber reinforced composites.                                                                   |
| C/19/27     | SR Herath                                   | Analysis of the behaviour of Woven natural fiber reinforced polymer matrix composites                                                                        |
| C/19/28     |                                             | Analysis of components made of Fully bonded unidirectional fibre reinforced polymer matrix composites                                                        |
| C/19/29     |                                             | Analysis of behaviour of human leg during walking                                                                                                            |
| C/19/30     | Chathurani Chandrasiri                      | Deep learning approach to model the hydration kinetics of cement based material                                                                              |
| C/19/31     |                                             | Numerical simulation of shrinkage behavior of cement system                                                                                                  |
| C/19/32     |                                             | The efficacy of the chemical admixture for alternative binder system.                                                                                        |

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| C/19/33     | KK Wijesundara     | Performance-based design of high-rise buildings for wind loadings                                                                                                                                                                                                                                                                       |
| C/19/34     |                    | Response of precast beam-to-column connections for quasi-static lateral cyclic loading                                                                                                                                                                                                                                                  |
| C/19/35     |                    | Modeling of in-elastic buckling of members in lattice towers using force-based fiber beam-column elements                                                                                                                                                                                                                               |
| C/19/36     | KAS Susantha       | Vibration of voided RC floors due to rhythmic human activities ( If a potential collaborator from dept of civil engineering is feasible, experimental part can be included. )                                                                                                                                                           |
| C/19/37     |                    | Study on the effect of resonance on earthquake response of RC frames                                                                                                                                                                                                                                                                    |
| C/19/38     | CS Bandara         | Soft and printable concrete with partial aggregate replacements by waste plastic & polythene (India-Sri Lanka Project - MOH)                                                                                                                                                                                                            |
| C/19/39     |                    | Behaviour of discontinuous welding of steel subject to cyclic loading ( Part of an ongoing project)                                                                                                                                                                                                                                     |
| C/19/40     |                    | Fatigue strength assessment of steel reinforcement bars with different damages                                                                                                                                                                                                                                                          |
| C/19/41     | AJ Dammika         | Detection of corrosion induced damages in RC & PC beams by using non-linear damping signatures                                                                                                                                                                                                                                          |
| C/19/42     | JASC Jayasinghe    | Wind Effect on High-Density Building Aeras: A Study based on CFD Simulations (For more information - D.P.N.A.P. Gunadasa, Instructor, STR Lab <e18116@eng.pdn.ac.lk>)                                                                                                                                                                   |
| C/19/43     |                    | Performance of Thin-Walled Steel Hollow Piers under Lateral Cyclic Loading (For more information - A.C.D. Pigera, RA, STR Lab <e16283@eng.pdn.ac.lk>)                                                                                                                                                                                   |
| C/19/44     |                    | Fire / Thermo-Mechanical Numerical Modeling OR Digital Twin (DT) and Computer Vision (CV) in Structural Health Monitoring (SHM) (For more information [Fire] - Y.P.K.M.W.N. Kanakarathna, Instructor, STR Lab <e17151@eng.pdn.ac.lk><br><br>For more information [Digital Twin] - E.M.R. Ekanayake, RA, STR Lab <e16095@eng.pdn.ac.lk>) |
| C/19/45     | HADS Buddhika      | Framework for corrosion-induced degradation of reinforced concrete structures                                                                                                                                                                                                                                                           |
| C/19/46     |                    | Investigating the environmental and economic impacts of using supplementary cementitious materials (SCMs) using the life cycle approach                                                                                                                                                                                                 |
| C/19/47     |                    | Characterization of corrosion in reinforced concrete beams using destructive and non-destructive tests                                                                                                                                                                                                                                  |
| C/19/48     | Sahan Bandara      | Exploring the structural performance of reinforced concrete columns retrofitted using Ultra High Performance Fibre Reinforced Concrete (UHPFRC) jacketing                                                                                                                                                                               |
| C/19/49     |                    | Investigating the effects of notches and holes on the performance of timber girders                                                                                                                                                                                                                                                     |
| C/19/50     |                    | Investigating the structural behaviour of reinforced concrete slabs retrofitted with Ultra High Performance Fibre Reinforced Concrete (UHPFRC) jacketing                                                                                                                                                                                |
| C/19/51     | LC Kurukulasooriya | Heave of subgrades stabilized optimally using cement, lime and Fly ash (Dr.MCM Nasvi as a co-supervisor)                                                                                                                                                                                                                                |
| C/19/52     |                    | Collapsibility characteristics of residual soils subjected to leaching under different hydraulic gradients and its effect on the stability of slopes                                                                                                                                                                                    |
| C/19/53     |                    | Influence of Anisotropic swelling behavior of expansive soils on the design of under-reamed pile foundations                                                                                                                                                                                                                            |

| Project No. | Supervisor           | Title                                                                                                                                                                               |
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| C/19/54     | MCM Nasvi            | A Comparative Life Cycle Assessment of Expansive Road Subgrade Stabilized with Different Binders: A Case Study (Co-Supervisor: Dr.L.C.Kurukulasuriya)                               |
| C/19/55     |                      | Performance of One-Part Geopolymer Stabilized Expansive Road Subgrades Under Mechanical and Environmental Loads                                                                     |
| C/19/56     |                      | Prediction of settlement of shallow foundations using ANN and its comparison with the traditional methods                                                                           |
| C/19/57     | AMRG Athapaththu     | Effect of degree of saturation on shear strength parameters of completely weathered rock of Gneisses                                                                                |
| C/19/58     |                      | Suitability of biomass fly ash to improve the properties of marginal soils ( Collaboration with Industry )                                                                          |
| C/19/59     |                      | Applicability of biomass bottom ash to improve the geotechnical properties of expansive soils (Collaboration with Industry )                                                        |
| C/19/60     | SK Navarathnaraja    | Mechanical Properties of Rubber-Ballast Mixtures for Railway Applications                                                                                                           |
| C/19/61     |                      | Assessment of Influence of Particle Shape on Shear Behavior of Large Granular Materials Through Artificial Neural Network Modeling                                                  |
| C/19/62     |                      | Predicting Pile Settlement Using Artificial Neural Networks Based on Standard Penetration Test (SPT) Data                                                                           |
| C/19/63     | AGHJ Edirisinghe     | Condition Assessment and Traffic Impact of Manhole Covers in Kandy Municipal Council                                                                                                |
| C/19/64     |                      | Pedestrian Distraction: Analyzing Mobile Phone Usage Patterns and Safety Implications                                                                                               |
| C/19/65     |                      | Assessing Helmet Usage Patterns and Safety Compliance Among Motorcyclists                                                                                                           |
| C/19/66     | HK Nandalal          | Estimating Route Travel Times Using Google Maps for Optimized Planning                                                                                                              |
| C/19/67     |                      | Assessing Travel Time Reliability through Mobile Phone GPS Data Analysis                                                                                                            |
| C/19/68     | MMGV Shyamalee       | Analysis of Delays at Pedestrian Crossings: A comparison of Signalized and Traffic Police Controlled Intersections                                                                  |
| C/19/69     | WMVSK Wickramasinghe | Public Transport Bus Travel Time Prediction through Machine Learning for Intelligent Public Transportation Systems ( Eng. W.M.H.P. Wijesundara)                                     |
| C/19/70     |                      | Predicting Traffic Delays Due to Lane-Changing Behavior in Urban Areas ( Eng. W.M.H.P. Wijesundara)                                                                                 |
| C/19/71     |                      | Modeling Pedestrian Compliance Behavior at Urban Signalized Intersections                                                                                                           |
| C/19/72     | WRSS Dharmarathna    | Multinomial Logit (MNL) approach for disaster evacuation center choice modeling (Co-supervised by Mr. Kasun Thalgaskotuwa, PhD Candidate, The University of Tokyo, Japan)           |
| C/19/73     |                      | Recursive Logit (RL) modeling approach for evacuation route choice in disastrous networks (Co-supervised by Mr. Kasun Thalgaskotuwa, PhD Candidate, The University of Tokyo, Japan) |
| C/19/74     |                      | Mode choice and mode shift of commuters for alternative bus route system in Kandy, Sri Lanka (Co-supervised by Mr. Dhanushka Herath, PhD Candidate, University of Peradeniya)       |