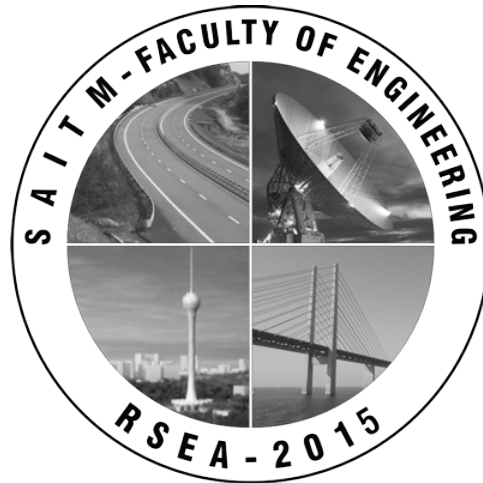


# Proceedings of the International Research Symposium on Engineering Advancements

## RSEA 2015

25<sup>th</sup> April, 2015



### Faculty of Engineering

South Asian Institute of Technology and Medicine [SAITM]  
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**ISBN 978-955-0638-04-8**

## Message from the Chairman

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**Dr. Neville Fernando** MBBS (Ceylon)

President / Chairman

South Asian Institute of Technology and Medicine [SAITM]



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It is with a sense of pride that I announce SAIMT – The Green Campus, the first multi-faculty institution in tertiary education is fast progressing and establishing itself as the leading seat of higher education from the non-state sector in Sri Lanka.

SAITM faculty of engineering offering B.Sc. Eng. Degree courses in many fields of specialization in affiliation with one of the leading research based universities in the world – Asian Institute of Technology (AIT), Thailand, since its establishment in 2009 has been leading in many innovative and pioneering efforts and has shown tremendous promise and growth.

With more than 500 students enrolled under its wings over the last 4 years, faculty of engineering has already established itself as the best alternative for those students seeking higher education in engineering saving a vast amount of foreign exchange to the country. With the first batch of our engineering graduates due to pass out from AIT shortly I am certain a new chapter in engineering profession in Sri Lanka will begin gifting the fruits of our efforts to the nation.

I wish RSEA 2015 will be a very successful event in the Faculty of Engineering, SAIMT.

## Message from the Dean, Faculty of Engineering

**Dr. Sisuru Sendanayake** BSc. Eng (Hons) MSc PhD (Moratuwa)

Dean, Faculty of Engineering

South Asian Institute of Technology and Medicine [SAITM]



International Research Symposium on Engineering Advancements (RSEA) organized by the SAITM faculty of Engineering is its window to the world. Acknowledging research along with teaching and training as one of the three principal branches of successful education in engineering, RSEA is organized as an annual event is the premier event of the academic calendar of the faculty conducted with the participation of academics researchers, students and a wide spectrum of participants from the industry and the higher education sector in Sri Lanka and abroad.

Inaugurated as a pioneering effort from the non-state sector higher education institutions in Engineering in Sri Lanka, RSEA has shown tremendous growth and success in terms of content and quality over the years and has become a noticeable event among the engineering fraternity.

Affiliated to the Asian Institute of Technology, Thailand -one of the premier post graduate institutions in engineering, SAITM faculty of engineering views this international research symposium as a vehicle to give the much needed exposure and opportunity to our undergraduates in honing their skills in engineering research while providing a forum and a fertile ground to develop a network among various stake holders in engineering in Sri Lanka, from academic sector as well as the industry to share and advance knowledge.

Already, the fruits of earlier versions of SAITM RSEA are evident and I am sure the country will begin reaping the benefits in the very near future in the form of highly skilled, world class engineering graduates who will commence serving the world.

Special appreciation should go to Dr. Nandika Miguntanna, Head of the organizing committee SAITM RSEA 2015 and to all our academic staff, partner organizations and students for their untiring efforts and dedication, contributing immensely to the success of the event.

## Welcome Message from the Conference Chair

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**Dr. N. P. Miguntanna** BSc. Eng (Hons)(Peradeniya), PhD(QUT)

Head - Civil Engineering Research

South Asian Institute of Technology and Medicine [SAITM]

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On behalf of the organizing committee of RSEA 2015, it is indeed with a great pleasure I welcome all the participants to “SAITM- Fifth Annual Research Symposium on Engineering Advancements – RSEA 2015”. It has been a great honor and privilege to serve as the chair of this symposium. RSEA is truly an inspiring event organized by the SAITM Faculty of Engineering annually in order to promote and build strong partnerships with the industry and academia. Furthermore, the symposium strives to present research activities carrying out by SAITM engineering undergraduate students.

I firmly believe that last four research symposiums RSEA 2011, RSEA 2012, RSEA 2013 and RSEA 2014 have been established as an important forum for researchers, academics, students of both state and non state sector higher education institutes and industrialists to share knowledge about engineering and scientific challenges, practical barriers, theoretical developments and their applications to build a sustainable environment for future generations.

RSEA 2015 framework has specially being designed to provide a multi disciplinary platform which comprises a number of emerging fields of engineering such as Structural Engineering and Finite Element Analysis, Highway Construction and Transportation Engineering, Renewable Energy, Consumption and Management, Water Resources and Environmental Engineering, Communication and Information Engineering, Image and Signal Processing, Quality Control and Management, Robotics, Control and Automation, Food Processing and Technology, Bio Processing and Town Planning and Urban Management.

Notably, RSEA 2015 is graced by three keynote speeches and around hundred technical paper presentations and productive technical discussions. Proceedings of RSEA 2015 contain double blind peer reviewed full papers and extended abstracts of preeminent research studies.

I take this opportunity to convey my sincere thank to chief guest, key note speakers, authors, members of the program committee, members of the technical committee, financial and logistics sponsors for their untiring dedication and commitment to make RSEA 2015 possible. I wish each of you successful deliberations, stimulating discussions, new friendships and finally a rewarding experience both technically and socially. I look forward to seeing you at RSEA 2015.

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# Table of Contents

## KEYNOTE SPEECHES

<b>USE OF MODELING AND SIMULATION FOR ENHANCED PERFORMANCE OF BUILDINGS</b> Prof. R. A. Attalage	1-1
<b>WATER, ENERGY AND FOOD NEXUS AND SUSTAINABILITY</b> Prof. K. D. W. Nandalal	2-2
<b>THINGS DO THINGS: WHY, WHAT AND HOW?</b> Dr. Janaka Wijayakulasooriya	3-3

## RESEARCH PAPERS PRESENTED ON 25<sup>TH</sup> APRIL, 2015

---

### STRUCTURAL, GEOTECHNICAL AND TRANSPORTATION ENGINEERING

---

<b>HISTORICAL DEVELOPMENT OF TRUSS BRIDGES IN SRI LANKA</b> P. A. C. Akalanka, R. D. Thirimanna, T. M. S. C. Bandara, K. K. G. Ushara Madushani, V. Hesara, K. K. Wijesundara	4-8
<b>CHARACTERISTICS OF THREE-WHEELER CRASHES</b> N. Amarasingha	9-12
<b>COMPARATIVE STUDY OF CAD SOFTWARE USE FOR ARCHITECTURAL DESIGNS</b> M. V. M. Jayathilake, P. H. A. B. Shantha	13-16
<b>DEVELOPING REGRESSION BASED MODEL TO PREDICT DEGREE OF COMPACTION VALUE OF FINE AGGREGATES SOIL PARAMETERS</b> M. A. M. Uwaiz, T. M. J. A. Cooray	17-20
<b>BEHAVIOR OF INVERTED L-SHAPED STEEL PIERS UNDER STRONG GROUND MOTIONS</b> H. H. M. Gunasoma, K. A. S. Susantha	21-23
<b>DEVELOPMENT OF DESIGN RESPONSE SPECTRA FOR SRI LANKA</b> S. B. Uduweriya, K. K. Wijesundara, P. B. R. Dissanayake	24-24
<b>AN ATTEMPT TO REINSTATE THE SHAPE OF A HIDDEN WONDER IN THE WORLD: THE GIGANTIC MAHA STUPA <i>DEMALA MAHA SEYA</i> IN SRI LANKA</b> M. M. M. Azhar, K. G. Herath, N. U. Moragoda, D. L. U. Deshanee, R. S. Mallawaarachchi	25-25
<b>HISTORICAL DEVELOPMENT OF ARCH BRIDGES IN SRI LANKA</b> Y. C. Dantalarayana, T. N. Perera, K. G. M. Kandethanthri, A. G. R. M. J. K. Ranaweera, P. P. K. Premarathne, K. K. Wijesundara	26-30
<b>THE STRUCTURAL ANALYSIS OF KING PARAKRAMABAHU'S PALACE</b> K. K. P. A. Ranaweera, W. K. R. Lilushan, D. M. W. L. Randenigama, K. K. Wijesundara	31-33
<b>COMPARATIVE STUDY ON ALTERNATIVE SHEAR LINK ARRANGEMENTS TO ENHANCE THE SHEAR CAPACITY OF BAMBOO REINFORCED CONCRETE BEAMS</b> M. V. T. N. Chandrasekara, A. K. T. N. Gunathilake, H. G. Kodithuwakku, W. W. A. D. Pitawala, L. A. R. D. Wimalarathne, R. S. Mallawaarachchi	34-34



---

**ENVIRONMENTAL ENGINEERING, DISASTER MANAGEMENT AND RENEWABLE ENERGY**

---

<b>REVIEW OF BINARY TOURNAMENT CONSTRAINT HANDLING TECHNIQUE IN NSGA II FOR OPTIMAL CONTROL OF COMBINED SEWER SYSTEMS</b> U. S. Rathnayake	35-41
<b>JOINT DISTRIBUTION OF RAINFALL AND TEMPERATURE IN ANURADHAPURA, SRI LANKA USING COPULAS</b> D. G. T. C. Keerthirathne, K. Perera	42-45
<b>COMPARISON OF METHODS TO ASSESS ENVIRONMENTAL FLOWS : A REVIEW</b> M. M. J. G. C. N. Jayasiri, N. D. K. Dayawansa, E. R. N. Gunawardena	46-49
<b>EFFECT OF URBANIZATION ON TEMPORAL AND SPATIAL VARIATION OF DISSOLVED OXYGEN CONCENTRATION IN A NATURAL STREAM: A CASE STUDY IN MEDA-ELA CANAL, KANDY, SRI LANKA</b> G. M. P. Kumara, A. C. S. Perera, I. P. S. K. Pelpitiya, M. M. J. G. C. N. Jayasiri, M. D. D. Perera, N. G. R. Saumyarathna, G. W. R. W. M. R. M. W. K. Kirinde, U. R. M. H. D. Rathnayake, R. P. S. P. Chandrasiri, D. M. N. Diyawadana, N. D. K. Dayawansa, M. I. M. Mowjood	50-53
<b>JOINT RETURN VALUE ESTIMATION OF EXTREMES OF SIGNIFICANT WAVE HEIGHTS AND WIND SPEED IN COLOMBO, SRI LANKA</b> P. M. Senadeera, K. Perera	54-58
<b>SYSTEMATIC REVIEW OF DEVELOPMENT OF NATURAL FLOOD DISASTER RESPONSE PLANNING SYSTEMS TO OPTIMIZE THE LAST MILE HUMANITARIAN LOGISTICS</b> A. T. Dissanayake, T. D. Rupasinhe	59-63
<b>LINEAR WIND FLOW MODEL IN PUTTALAM REGION</b> W. A. M. K. P. Wickramaarachchi, P. M. A. M. K. Wickramasinghe, M. Narayana, P. W. Vidanage	64-67
<b>OPTIMIZATION OF ADSORPTION-COAGULATION PROCESS FOR TREATMENT OF PALM OIL MILL EFFLUENT (POME) USING ALTERNATIVE COAGULANT</b> Asadullah, P. G. Rathnasiri	68-71
<b>MODEL OF RENEWABLE ENERGY TECHNOLOGY TRANSFER TO DEVELOPING COUNTRIES: A PLAUSIBLE APPROACH FOR SRI LANKA</b> A. S. Withanaarachchi, L. D. J. F. Nanayakkara, C. Pushpakumara	72-75
<b>VARIATIONS OF WATER QUALITY IN DEHIWALA, WELLAWATTA AND KIRULAPONE CANALS</b> S. M. A. T. de S. Nandaseela, R. U. K. Piyadasa	76-81
<b>USE OF PRINCIPAL COMPONENT ANALYSIS AS A VERSATILE TOOL TO EVALUATE THE QUALITY OF RUNOFF FROM URBAN ROAD SURFACES</b> I. U. Nagasinghe, W. M. L. P. Weerakon, N. S. Miguntanna	82-85
<b>IDENTIFICATION THE QUALITY OF STORMWATER WASHOFF IN DIFFERENT URBAN LAND USES</b> I. U. Nagasinghe, W. M. L. P. Weerakon, N. S. Miguntanna	86-88
<b>STUDY ON AN INTEGRATED CONSTRUCTED WETLAND SYSTEM FOR COLOUR REMOVAL OF TEXTILE DYEING EFFLUENT</b> W. B. I. P. M. Fernando, D. H. Abeywardhana, P. G. Rathnasiri	89-94
<b>ANALYSIS OF CURRENT PRACTICE AND AWARENESS ON WASTE MANAGEMENT AND DISPOSAL TECHNIQUES IN SMALL SCALE FOOD INDUSTRIES</b> B. T. G. Balasuriya, J. S. L. Arachchi, N. S. Nalim, K. W. V. A. Weerasinghe, P. B. Jayasinghe, N. P. Miguntanna	95-99

<b>WATER QUALITY VARIATION IN MENIK RIVER IN SRI LANKA AND PEOPLE'S AWARENESS</b> Faisal Islam, N. U. Weerakkody, S. M. R. S. Subhasighe, S. K. Wickramasekara, R. M. I. T. Dias, N. P. Miguntanna	100-109
<b>ANALYSIS OF FIRST FLUSH OF ROOF RUNOFF AND WASH OFF PROCESS OF THE DIFFERENT ROOFING MATERIALS</b> S. R. Navamani, H. T. H. L. Jayananda, W. B. D. T. Fernando, M. A. Rizny, T. Amarathunga, W. A. K. D. Weragoda, N. P. Miguntanna	110-116
<b>CURRENT STATUS AND PUBLIC PERCEPTION ON SOLID WASTE MANAGEMENT IN MALABE, SRI LANKA</b> A. B. Herath, G. W. A. S. Piyasumana, M. Y. V. Amarathunga, L. M. A. Nagasingha, N. P. Miguntanna	117-124
<b>UNDERSTANDING SIGNS OF CLIMATE CHANGE THROUGH WEATHER DATA ANALYSIS: A CASE STUDY IN MALABE, SRI LANKA</b> J. M. B. Indrarathna, H. S. Sumanasekara, R. M. M. A. Walaliyadde, P. M. Weerasekara, R. S. Mallawaarachchi	125-125
<b>INVESTIGATION OF STABILITY OF ANAEROBIC DIGESTION OF FOOD WASTE IN A PLUG FLOW REACTOR USING MATHEMATICAL MODELING AND SIMULATION</b> H. D. S. S. Karunarathne, P. G. Rathnasiri	126-129
<hr/> <b>ROBOTICS, AUTOMATION AND MECHATRONICS ENGINEERING</b> <hr/>	
<b>DEVELOPMENT OF A LIQUID LEVEL CONTROLLER BY USING DIGITAL SIGNAL PROCESSING SYSTEM</b> G. K. G. S. Kumara, M. Narayana	130-133
<b>TWO HANDED SIGN LANGUAGE RECOGNITION SYSTEM USING IMAGE PROCESSING</b> H. F. S. M. Fonseka, J. T. Jonathan, P. Sabeshan, M. B. Dissanayaka	134-138
<b>IMPROVED VIRTUAL MOUSE POINTER USING KALMAN FILTER BASED GESTURE TRACKING TECHNIQUE</b> D. R. A. M. Dissanayake, U. K. R. M. H. Rajapaksha, M. B. Dissanayake	139-143
<b>AN ADHOC NETWORK BASED MOBILE ANDROID REMOTE CONTROLLER (REMODROID)</b> M. D. K. N. Senevirathne, P. H. V. Vishwani, K. T. S. Kasthuriarachchi	144-148
<b>AN EFFECTIVE APPROACH FOR SINHALA HAND WRITTEN CHARACTER RECOGNITION (SHWCR)</b> H. M. A. Jayasanka, H. M. R. S. Sugathadasa, G. Wijerathne	149-152
<b>LOW COST DEXTEROUS TELEOPERATION HUMANOID ROBOTIC HAND WITH WEARABLE REMOTE CONTROLLER</b> A. Salman, A. Seenii, Y. M. T. Y. Bandara	153-154
<b>ESTIMATION OF CHARACTERISTICS OF DUTCH ROLL FOR MODEL AIRCRAFT AT THE CONCEPTUAL DESIGN PHASE</b> A. L. N. A. Perera	155-158
<b>FEATURE SIMILARITY EVALUATION AND EVENT CLUSTERING FOR VISION SYSTEMS</b> W. S. K. Fernando, P. H. Perera, H. M. S. P. B. Herath, M. P. B. Ekanayake, G. M. R. I. Godaliyadda, J. V. Wijayakulasooriya	159-164
<b>ANALYSIS OF A NOVEL DEAD-TIME COMPENSATION TECHNIQUE FOR THREE PHASE SPACE-VECTOR PWM BASED VSI DRIVES</b> S. M. H. K. Samarasinghe, D. B. Rathnayake, S. G. Abeyratne	165-170

<b>AN IMPLEMENTATION OF A USER FOLLOWING ALGORITHM ON A HUMAN ASSISTANT OBSTACLE AVOIDING ROBOT</b>	
M. M. Punchihewa, A. Seeni, Y. M. T. Y. Bandara	171-174
<b>APPLICATION OF REINFORCEMENT LEARNING IN AGENT NAVIGATION</b>	
L. Wijerathna, A. S. Karunananda	175-178
<b>TOWARDS SMART HOME APPLICATIONS: DESIGN AND IMPLEMENT A SMART ELECTRICAL ENERGY MONITORING DEVICE FOR DOMESTIC USAGE</b>	
D. D. V. P. Gunawardana, M. W. P. Maduranga	179-182
<b>PERSISTENT VISION DISPLAY</b>	
D. T. Rathnayake, C. K. Kulasekera, Y. V. Fernando, T. W. Meewella, J. P. Praveena, S. L. P. Yasakethu	183-186
<b>DESIGN, ANALYSIS AND EXPERIMENTS OF AN AII-TERRAIN-ROBOT (ATR)</b>	
P. Abeykoon, R. Dayananda, S. Vidanaarachchi, J. A. M. Robise, J. V. Wijayakulasooriya	187-190
<b>REMOTE CONTROLLED 4WD OMNI DIRECTIONAL ROBOT USING MECANUM WHEELS</b>	
M. K. S. H. Maldeniya, R. C. Madurawe, L. B. H. T. Thilakasiri, T. M. S. Thennakoon, R. M. T. P. Rajakaruna	191-194
<b>MODULAR SELF-RECONFIGURABLE ROBOT FOR EFFICIENT MANEUVERING IN A CLUTTERED ENVIRONMENT</b>	
C. N. Koperahewa, Y. N. Damboragama, S. D. Ranaweera, U. M. Welikanna, K. M. Ilangaratne, R. M. T. P. Rajakaruna	195-198
<b>DESIGN AND ANALYSIS OF A CIRCULAR DIGITAL DISPLAY USING A LINEAR LED ARRAY</b>	
B. N. H. Abeywardena, S. S. Randeniya, G. K. A. I. Kapuge, W. S. Perera, W. A. V. Deemantha, J. V. Wijekulasooriya	199-201
<b>OMNI-DIRECTIONAL SPHERICAL ROBOT</b>	
S. N. Perera, C. L. Mendis, S. L. Wijesinghe, K. O. Samarawickrama, K. Kalugampitiya, J. V. Wijekulasuriya	202-205
<b>SIGN LANGUAGE INTERPRETOR FOR LETTERS AND DIGITS USING AN ELECTRONIC GLOVE</b>	
J. Jinadasa, I. Liyanage, S. Perera, S. Bandara, J. V. Wijayakulasooriya	206-207
<b>DESIGN AND DEVELOPMENT OF AN OMNI-DIRECTIONAL WHEELED MOBILE ROBOT</b>	
J. A. S. S. Jayakody, R. Munagamage, K. D. K. M. Munasinghe, T. M. M. P. Muhandiram, P. A. I. N. Premarathna, R. M. T. P. Rajakaruna	208-210
<b>DESIGN AND DEVELOPMENT OF AN UNMANNED GROUND VEHICLE (UGV)</b>	
S. P. Kodippily, N. C. A. Jayawicrama, H. M. Bandaranayake, H. R. Uluwaduge, R. M. T. P. Rajakaruna	211-214
<b>STAIR CLIMBING ROBOT: DESIGN AND DEVELOPMENT</b>	
V. D. R. E. Wijesinghe, W. D. T. Boteju, A. R. Perera, S. J. Fernando	215-218
<hr/>	
<b>ELECTRONICS AND COMMUNICATION ENGINEERING</b>	
<hr/>	
<b>SKYPE VS. GOOGLE HANGOUT: LONG DISTANCE VIDEO CALL QUALITY COMPARISON</b>	
J. M. N. D. B. Jayasekara, T. Gunarathne, W. G. C. W. Kumara	219-222
<b>DESIGN AND IMPLIMENTATION OF A SMART TRAINER TO STUDY THE FLOW CONTROL IN DATA LINK LAYER</b>	
Y. S. P. Weerasinghe, M. W. P Maduranga	223-226

<b>TORRENT DOWNLOADING BY REMOTELY ACCESSING A PC USING MOBILE PHONE</b> D. R. S. Ekanayake, G. J. M. Fernando, W. T. D. Fonseka, S. D Gunaratne, M. P. A. W. Gamage, K. P. D. H. De Silva	227-230
<b>FACE RECOGNITION BY INDEPENDENT COMPONENT ANALYSIS TO VERIFY STUDENT IDENTITY</b> W. K. T. M. Gunarathne, S. K. Arachchi, W. G. C. W. Kumara	231-234
<b>OPTIMIZATION OF WIRELESS PATHLOSS MODEL JTC FOR ACCESS POINT PLACEMENT IN WIRELESS LOCAL AREA NETWORK</b> R. F. Safna, E. J. N. Manoshantha, S. A. T. S. Suraweera, M. B. Dissanayake	235-238
<b>AN APPROACH FOR STABLE MIGRATION OF IPV4 TO IPV6 IN SRI LANKAN ISP NETWORKS</b> H. M. A. Jayasanka, H. M. R. S. Sugathadasa, G. Wijerathne	239-242
<b>EFFECTIVE IMAGE REPRESENTATION USING PCA AND ICA FOR FACE RECOGNITION</b> G. Tharshini, H. G. C. P. Dinesh, G. M. R. I. Godaliyadda, M. P. B. Ekanayake	243-247
<b>HANDWRITTEN DIGIT RECOGNITION ON SURVEY FOR EDUCATION</b> O. Ankhtuya, W. G. C. W. Kumara, Ch. Enkhtuul	248-251
<b>APPLICABILITY OF HIDDEN MARKOV MODEL APPROACH FOR SINHALA SPEECH RECOGNITION – A SYSTEMATIC REVIEW</b> L. A. D. S. A. Molligoda, P. G. Wijayarathna	252-255
<b>A FRAMEWORK FOR FULFILLING COMPLEX, STAKEHOLDER SPECIFIC INFORMATION REQUIREMENTS BY MINING MULTIPLE SOFTWARE REPOSITORIES</b> C. K. Kumarasinghe, C. P. Wijesiriwardana, M. I. M. Nasmin	256-259
<b>THE ROLE OF CREATIVE THINKING IN SOFTWARE DEVELOPMENT PROJECTS</b> I. T. Guruge, A. A. J. Chinthaka	260-263
<b>A CONCEPT OF BALANCED-CLIENT FOR RICH INTERNET APPLICATIONS</b> N. R. Dissanayake, G. U. Liyanage, G. K. A. Dias	264-267
<b>REAL-TIME AUDIO STREAMS SYNCHRONIZING IN MOBILE DEVICES</b> N. R. Dissanayake, K. Rodrigo	268-272

---

## **FOOD AND BIO PROCESS ENGINEERING AND TECHNOLOGY**

---

<b>DEVELOPMENT OF A PROTEIN ENCASED FERROUS FUMARATE MICROCAPSULE</b> D R. M. P. I. Rajakaruna, I. R. Ariyaratna, D. N. Karunaratne	273-276
<b>STUDY THE RELATIONSHIP BETWEEN PADDY CROP FAILURES AND RAINFALL IN MINOR TANKS: A CASE STUDY IN BAYAWA TANK</b> R. P. S. P. Chandrasiri, M. I. M. Mowjood, L. W. Galagedara	277-280
<b>DEVELOPMENT OF READY TO SERVE CURRY LEAF BEVERAGE</b> P. N. R. J. Amunugoda, R. Pitipanaarachchi, S. A. S. Jayawardana, S. G. Walliwala	281-282
<b>DEVELOPMENT OF AN INDEX TO ASSESS THE WATER REGIME OF PADDY FIELD ECO SYSTEM: A CASE STUDY IN AWLEGAMA, WARIYAPOLA</b> G. W. R. W. M. R. M. W. K. Kirinde, M. I. M. Mowjood, N. D. K. Dayawansa	283-286
<b>DETERMINATION OF SUGAR UTILISATION BY <i>Pediococcus pentosaceus</i> IN FERMENTATION OF MADATHAWALU</b> N. D. Wijemanna, D. M. W. D. Divisekera, I. G. N. Hewajulige, M. M. N. P. Gunasekera, J. Goonaratne, R. A. U. J. Marapana	287-290

<b>AN OVERVIEW OF THE SOCIO-ECONOMIC IMPACT OF IMPROPER HANDELLING AND TRASPORTION OF VEGETABLES IN SRI LANKA</b>	
S. Abeygunasekara	291-294
<b>CONSUMER'S PERCEPTION ON UNDERUTILIZED FRUITS: THE CASE OF BAELE FRUIT (Aegle marmelos)</b>	
I. G. I. Amarasiri, R. B. Pitagampola, M. I. D. A. Sooriyabandara, P. W. H. Munasinghe, K. Shadakopan, D. K. L. D. Gunawardana, W. M. D. Priyadarshani	295-298
<b>COMPARATIVE STUDY OF ENERGY POTENTIAL OF MANGO PIT AS BIOMASS WITH COCONUT SHELL GINISYRIA &amp; MIXTURE IN LABORATORY SCALE DEVELOPED UPDRAFT GASIFIER</b>	
Muhammad Amin, Mahinsasa Narayna	299-302
<b>ANALYSIS OF ATTITUDES AND WILLINGNESS TO HEALTHY FOODS AMONG STUDENTS OF NON STATE SECTOR HIGHER EDUCATIONAL INSTITUTES IN MALABE SUBURB</b>	
J. M. T. K. Jayasekera, M. A. Gunasekara, S. K. L. Ariyathilaka, K. N. M. H. H. Kosgahakumbura, P. A. K. L. Thalagama, W. M. D. Priyadarshani	303-309
<b>PRELIMINARY INVESTIGATION ON DEVELOPING LOW COST EVAPORATIVE COOLING CHAMBER</b>	
H. L. T. U. Udayanga, S. Weerasinha, R. D. Kannangara, A. M. Ayaj, Y. V. Guruge, W. M. D. Priyadarshani	310-311
<hr/>	
<b>CHEMICAL ENGINEERING AND NANOTECHNOLOGY</b>	
<hr/>	
<b>FACILE SYNTHESIS OF HYDROXYAPATITE (HAp) NANOPARTICLES WITH DIFFERENT MORPHOLOGIES</b>	
D. C. Manatunga, W. R. M. de Silva, K. M. N. de Silva	312-315
<b>PRODUCTION OF HIGH QUALITY ACTIVATED CARBON FROM COIR AT LOW COST FOR ELECTRONICS DEVICES</b>	
N. W. P. S. Perera, C. A. N. Fernando, S. A. Ariadurai	316-318
<hr/>	
<b>RISK ASSESSMENT, PROJECT MANAGEMENT AND QUALITY CONTROL</b>	
<hr/>	
<b>ROLE OF STANDARD MINUTE VALUE IN EXPORT PROCESSING: WILL IT MAKE DIFFERENCE TO THE FIRM ECONOMIC PERFORMANCE?</b>	
B. E. S. Bandara, D. A. M. De Silva, G. Fernando	319-329
<b>SURVIVABILITY ANALYSIS OF PEDIATRIC LEUKAEMIC PATIENTS USING NEURAL NETWORK APPROACH</b>	
T. M. D. Saumya, T. Rupasinghe, P. Abeyasinghe	330-334
<b>DETERMINANTS OF CHILDHOOD LEUKEMIA: A RISK ASSESSMENT MODEL FOR SRI LANKA</b>	
T. Priyadharshan, T. Rupasinghe, P. Abeyasinghe	335-338
<b>IMPACT OF VALUE CHAIN MANAGEMENT ON FIRM COMETITIVENESS</b>	
W. L. Y. Janithri, D. A. M. De Silva, G. Fernando	339-344
<b>THE DEGREE OF ENTREPRENEURSHIP WITHIN THE ENTREPRENEURIAL PROCESS IN RELATION TO FAMILY BUSINESS SUCCESS</b>	
K. A. S. Navarathne	345-348
<b>FORECASTING DENGUE PATIENT COUNTS IN A DISTRICT BASED ON NEIGHBORING DISTRICTS AND RAIN-FALL VIA MACHINE LEARNING</b>	
A. Nugaliyadde, G. T. U. V. Somaratne, R. Kumarasinghe, C. J. Wikramasinghe	349-353

**EFFECT OF CORRELATION BETWEEN VARIABLES FOR MULTIVARIATE CONTROL CHARTS  
TO MONITOR THE PROCESS MEAN**

R. A. B. Abeygunawardana, R. De Silva

354-357

**ICT IMPLEMENTATION AND PROGRESSION OF SMALL ENTERPRISES:  
A STUDY OF GAMPAHA CITY, SRI LANKA**

S. Pathiratne

358-361

**VIGILANCE, ACCESS AND USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT'S)  
AMONG SRI LANKA FEMALE POSTGRADUATE STUDENTS AND  
FEMALE RESEARCHES IN AGRICULTURE**

S. Pathiratne

362-364