

Proceedings of the SAIMT Research Symposium on
Engineering Advancements
SAITM – RSEA 2011



27th & 28th May, 2011

South Asian Institute of Technology and Medicine [SAITM]

P.O Box 11, Millennium Drive,
Off Chandrika Kumaratunga Mawatha,
Malabe, Sri Lanka.

Scope of the Symposium:

1. Computer Science and ICT
2. Electrical, Electronics, and Communications
3. Mechatronics and Automation
4. Water and Environment
5. Geotechnical and Soil Mechanics
6. Structural and Transportation

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Message from the Chairman

Prof. Neville Fernando MBBS (Ceylon)

President / Chairman

South Asian Institute of Technology and Medicine [SAITM]



It is with great pleasure that we announce the organizing of the inaugural SAIMT Research Symposium on Engineering Advancements (SAITM – RSEA 2011) scheduled for 27th and 28th of May, 2011. This volume of proceedings of SAIMT – RSEA 2011 contains the research papers that are presented on 27th and 28th of May 2011 along with the extended abstracts of keynote speeches. All the research papers of this volume have been peer-reviewed. The editors are very much grateful to the authors for contributing research papers high quality. We also acknowledge the financial sponsorship provided by many organizations that has been extremely helpful for organizing a successful research symposium.

We are pleased to acknowledge the advice and assistance provided by the members of International Advisory Committee along with many others who volunteered to assist to make this very significant event a success. It is the earnest wish of the editors that this volume of proceedings would serve a very useful service with the research community directly or indirectly involved in studies related to Engineering Advancements.

I take this opportunity to thank the Dean of the Faculty of Engineering and IT, Dr. Sisuru Sendanayake and his staff for organizing this event.

Message from the Dean, Faculty of Engineering & IT

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

Dean, Faculty of Engineering & IT

South Asian Institute of Technology and Medicine [SAITM]



SAITM Research Symposium on Engineering Advancements (RSEA) marks the first step by SAITM faculty of engineering in achieving the goal of becoming a world class centre for teaching and research in the field of engineering. The event indeed is significant and unique in many aspects as SAITM RSEA is the first time a non-state sector faculty of engineering has organized such a program in Sri Lanka. The event also highlights the progress made by the faculty within the first two years of its existence in the field of engineering education.

SAITM faculty of engineering has already established a name for itself as a faculty that maintains high standards in its delivery of degree programs but the quantity and quality of research is an important yardstick to attain higher rankings in the international arena. SAITM faculty of engineering has taken the initiative and with the highly qualified and dedicated academic staff I am sure achieving that objective and contributing positively to the engineering education in Sri Lanka will soon become a reality.

I hope our students will benefit immensely by contributing and participating in the event and the initiation and encouragement generated would spur them to become world class engineers and researchers in the future.

Message from the Editor

Prof. Lanka Udawatta BSc. Eng(Hons) MEng(Saga) PhD(Saga) CEng MIEEE MCIS

The Editor of the Proceedings

SAITM Research Symposium on



It is my great pleasure to welcome you to the “SAITM Research Symposium on Engineering Advancements – 2011”. An academic institution can achieve a competitive status if and only if it has a significant presence in the research community, actively involved in research & development activities and publish the significant outcomes whenever possible.

The aim of SAIMT Research Symposium on Engineering Advancements – 2011 is designed to bring together university students, researchers, academics and industrialists in an open and interactive forum that recognises engineering and scientific challenges, practical barriers, theoretical developments & their applications in order to bring a sustainable development. Topics of this symposium in the main tracks include Computer Science and ICT, Electrical, Electronics, and Communications, Mechatronics and Automation, Water and Environment, Geotechnical and Soil Mechanics, and Structural and Transportation Engineering.

Each submission was subjected to a minimum of one peer review by an expert in the field. The overall quality and impartiality was guaranteed by this process. In addition, you will be listening to two keynote addresses by two outstanding personnel from the academia, Prof. Dileeka Dias and Prof. Ranjith Dissanayake. In general, I hope that this symposium will provide you a great learning and networking experience.

I am looking forward to meeting you at the SAIMT Research Symposium on Engineering Advancements – 2011.

SAITM – RSEA 2011 Agenda

Day 1: 27th May 2011 (Friday)	
08:30 AM - 09:00 AM	: Registration
09:00 AM - 09:10 AM	: Welcome Address by Dr. S. Sendanayake, Dean, Faculty of Engineering & IT
09:10 AM - 09:20 AM	: Address by Prof. Neville Fernando, Chairman, South Asian Institute of Technology and Medicine [SAITM]
09:20 AM - 09:30 AM	: Address by Prof. Malkanthi Chandrasekara, Vice-Chancellor
09:30 AM - 10:05 AM	: Keynote Address 1: Prof. Dileeka Dias
10:05 AM - 10:40 AM	: Keynote Address 2: Prof. Ranjith Dissanayake
10:40 AM - 10:45 AM	: Vote of Thanks by Prof. Lanka Udawatta, The Editor
10:45 AM - 11:00 AM	: Tea Break
11:00 AM - 12:00 PM	: Paper Presentations - Session 1*
12:00 PM - 01:00 PM	: Lunch Break
01:00 PM - 02:15 PM	: Paper Presentations - Session 2*
02:15 PM - 03:30 PM	: Paper Presentations - Session 3*
03:30 PM - 03:45 PM	: Tea Break
03:45 PM - 04:30 PM	: Paper Presentations - Session 4*
04:30 PM	: End of Program Day 1
* Paper Presentations: 15 minutes each (10 min. presentation + 5 min. Q&A)	

Day 2: 28th May 2011 (Saturday)

08:30 AM - 09:00 AM	: Registration
09:00 AM - 10:30 AM	: Paper Presentations - Session 5*
10:30 AM - 10:45 AM	: Tea break
10:45 AM - 12:00 PM	: Paper Presentations - Session 6*
12:00 PM - 01:00 PM	: Lunch break
01:00 PM - 05:00 PM	: Field Visit to Colombo Harbor Project

*** Paper Presentation: 15 minutes each (10 min. presentation + 5 min. Q&A)**

SAITM RSEA 2011 - Programme Committee

- Prof. Lanka Udawatta
- Dr. Sisuru Sendanayake
- Dr. R. S. Mallawaarachchi
- Dr. Harsha Abeykoon
- Dr. Nandika Miguntanna
- Dr. Sanjeeva Witharana
- Mr. Kumara Jayawickrama
- Mr. T. Gunarathne