

FACULTY OF ENGINEERING



Professor H C S Rughooputh
Dean of Faculty

INTRODUCTION

The year 2002/2003 witnessed a significant increase in the student population of the Faculty of Engineering. The total student population was 1655. The demand for programmes at the Faculty of Engineering was also on the increase with 3112 applications for the Faculty's undergraduate and postgraduate programmes. Out of this number, 1449 candidates were selected and called for registration. In all 486 students registered in academic year 2002/2003 reaching the Faculty's full intake capacity. The Faculty also admitted 5 foreign students.

MAJOR DEVELOPMENTS

The Department of Mechanical & Production Engineering finalised two new MSc Programmes to be offered in Academic year 2003/2004.

- (i) MSc Industrial Engineering & Management
- (ii) MSc Quality Management

MSc Industrial Engineering & Management

This programme has been specifically designed to equip graduates in Engineering Management with problem solving, technical and managerial skills and knowledge related to Industrial Engineering and Management to prepare them for professional careers in Managing Manufacturing, Engineering and other technologically oriented services.

MSc Quality Management

The Quality Management Programme is increasingly recognised as an important discipline within a wide range of sectors. The aim of the programme is to enable those employed in a specific quality management role or other technical discipline to make a more effective contribution to their organisation, particularly in the field of continuous improvement of processes.

Mississippi Consortium for International Development (MCID)

The Dean of Faculty visited the United States of America under the MCID programme for the project Information Technology Enhancement which is an international Development Partnership between the Mississippi Consortium for International Development (MCID) and the University of Mauritius.

Professor H C S Rughooputh presented two papers at Jackson State University and one paper at Howard University.

It was recommended that there be exchange of staff from the University of Mauritius to the USA as from academic year 2004/2005 after some staff would have cleared their PhDs.

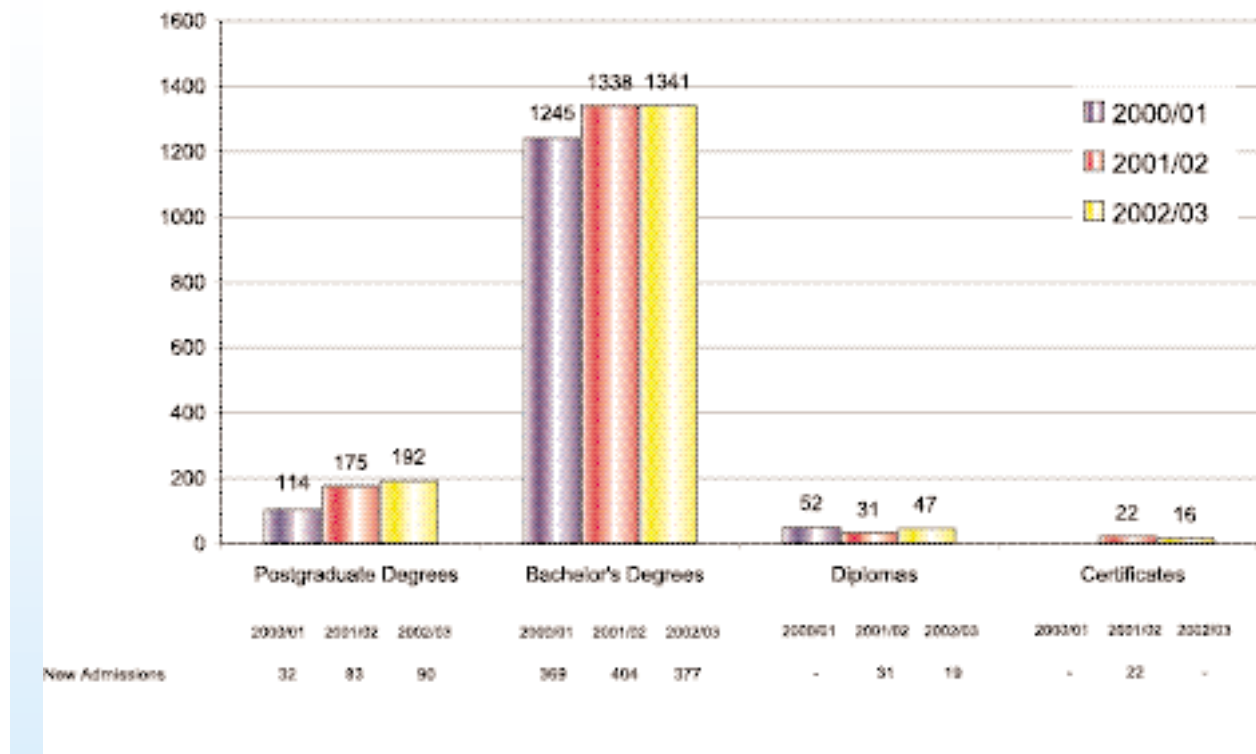
Under the UOM-MCID partnership, the University of Mauritius received a sum of US\$60,000 from the MCID for the setting up of an open Computer Laboratory at the Faculty of Engineering. The laboratory has already been set up.

PROGRAMMES OFFERED DURING ACADEMIC YEAR 2002/2003

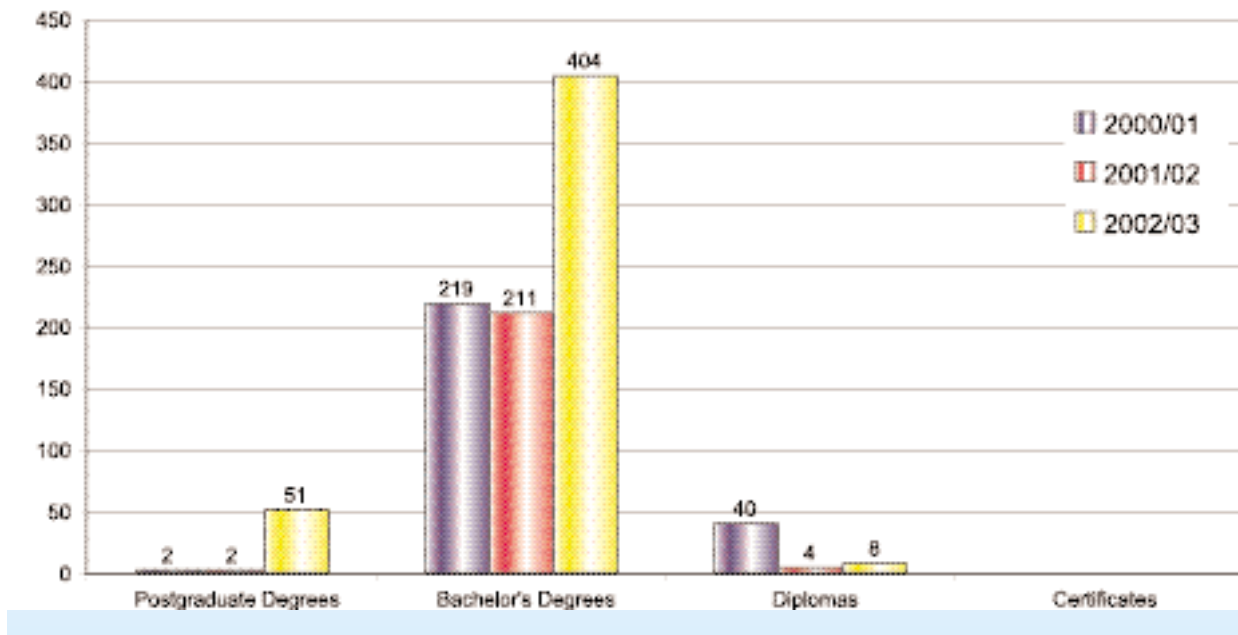
- 1 MPhil/PhD (by research)
- 2 MSc Environmental Engineering
- 3 MSc Information and Communication Technologies
- 4 MSc Information Technology
- 5 MSc Project Management
- 6 Postgraduate Diploma in Computer Applications & Multimedia Development
- 7 BEng (Hons) Chemical & Sugar Engineering/Environmental Engineering
- 8 BEng (Hons) Civil Engineering
- 9 BEng (Hons) Computer Science & Engineering
- 10 BEng (Hons) Electrical & Electronic Engineering/Communication Engineering
- 11 BEng (Hons) Manufacturing Engineering
- 12 BEng (Hons) Mechanical Engineering
- 13 BEng (Hons) Mechatronics
- 14 BSc (Hons) Computer Science & Engineering
- 15 BSc (Hons) Computer Science with Multimedia
- 16 BSc (Hons) Electronics and Computer Science
- 17 BSc (Hons) Information and Communication Technologies
- 18 BSc (Hons) Information Systems
- 19 BSc (Hons) Textile and Fashion Design
- 20 BSc (Hons) Textile Technology
- 21 BSc (Hons) Town & Country Planning
- 22 Diploma in Hydrology
- 23 Diploma in Land Surveying
- 24 Diploma in Town and Country Planning
- 25 Certificate in Solid Waste Management

STUDENT STATISTICS FACULTY OF ENGINEERING

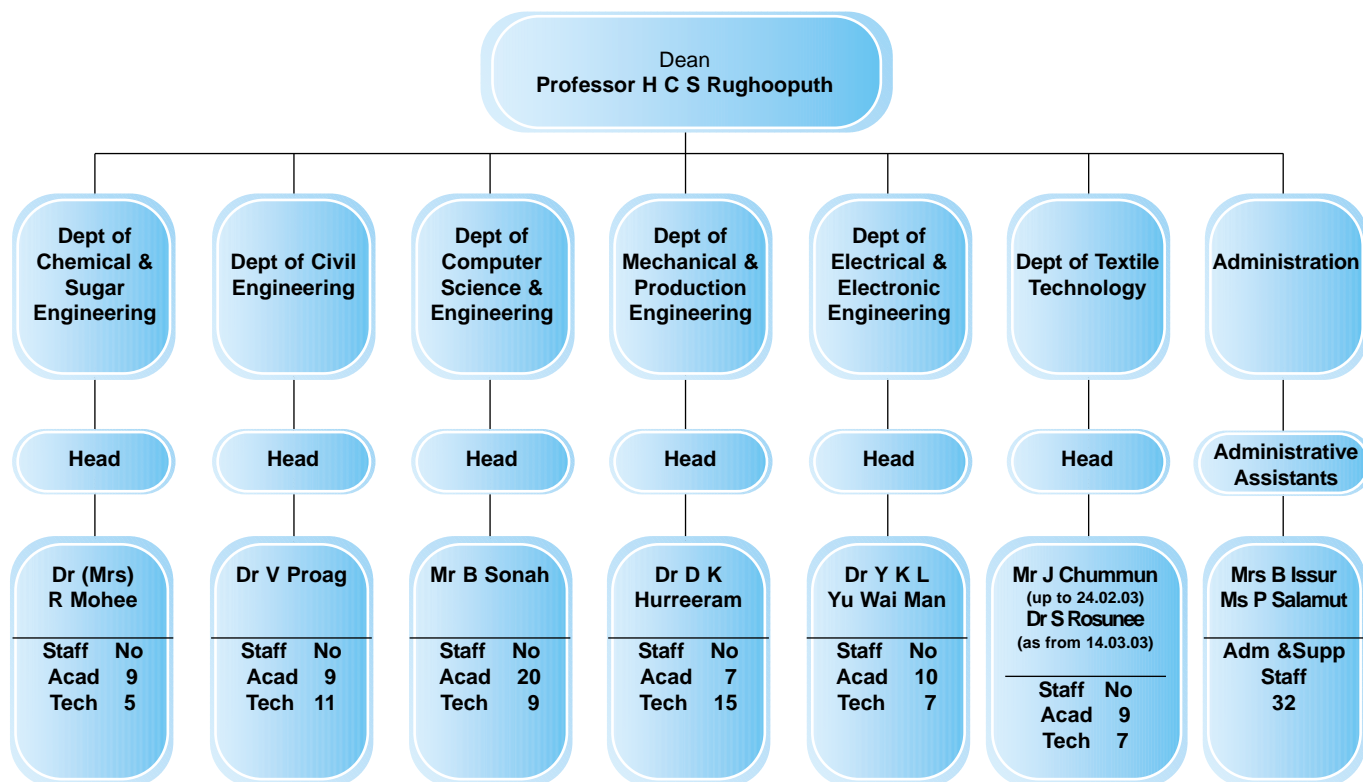
Students Enrolment including New Admissions over Academic Years 2000/2001-2002/2003



Students output over Academic Years 2000/2001-2002/2003



STRUCTURE OF THE FACULTY



RESEARCH ACTIVITIES

New MPhil / PhD Projects Registered in 2002/2003

Mr R K Dreepaul Alternative NON-CFC Refrigerates and Energy-Saving Technologies in Mauritius: Industrial / Commercial Refrigeration and Air Conditioning Applications .

Mr R K Foolmaun A Life Cycle Assessment (LCA) of used Polyethylene Terephthalate (PET) bottles in the Mauritian Context .

Mrs A D Mahapatra Dindoyal Application of the Industrial Source Complex (ISC) Model in the Airshed of selected Industrial Estates .

Mr V Oree Security on the Internet, in Web-based Applications and Application of Cryptography .

Mr M Soobron Embracing the New Information Communication Technologies: Appropriate Regulatory Structures .

Ongoing Research Projects

Mr A K Ragen Treatment of Greywater by Constructed Wetland at Individual Household Level for Re-use as Backyard Irrigation.

Mr O P Seejore, Dr K Elahee, Mr S Doman MRC Project on Monitoring and Control of Emissions from CEB Power Plants, in partnership with the Central Electricity Board and the Ministry of Environment .

Research Activities Completed

Mr N Kistamah MRC Project on Fuzzy control of Batch Dyeing Process , 2001-2003.

Award of PhD in 2002/2003 (Academic Staff)

The following academic staff members were awarded their PhD:

J Beedassy Ramloll (University of Mauritius)

D K Hurreeram (University of Huddersfield)

S Rosunee (UMIST)

CONSULTANCIES

Dr D K Hurreeram

Design and Manufacture of Moulds for the following clients
Danielletti, Comanu Ltee

Mr O P Seejore, Dr K Elahee, Mr S Doman

Training/Sensitisation of Police Officers/ NTA officials and officials from Ministry of Environment on monitoring of emissions from vehicles.

EXTERNAL EXAMINERS

NAME	UNIVERSITY	PROGRAMME	DATES OF VISIT
Professor David BUTLER	Imperial College London	MSc Environmental Engineering MSc Environmental Science	28 Sep – 30 Oct 2002
Dr Geoffrey COULSON	University of Lancaster	MSC IT with Management/MSc IT Postgraduate Diploma in Computer Applications BSc (Hons) Computer Science & Engineering BEng (Hons) Computer Science and Engineering BSc (Hons) Information Systems	31 May – 12 Jun 2003
Professor Bahram HONARY	University of Lancaster	BEng (Hons) Electrical & Electronic Engineering/ Electronic & Communication Engineering MSc Information and Communication Technology	07 – 14 Jun 2003
Professor Howard WRIGHT	University of Strathclyde	BEng (Hons) Civil Engineering	8 – 14 Jun 2003
Professor Anthony Joseph BIDDLESTONE	University of Birmingham	BEng (Hons) Chemical & Sugar/ Environmental Engineering	16 – 26 Jun 2003
Professor George K STYLIOS	Heriot – Watt University	BSc (Hons) Textile Technology BSc (Hons) Textile & Fashion Design	18 – 24 Jun 2003
Professor David LITTLE	University of Huddersfield	BEng (Hons) Mechatronics BEng (Hons) Mechanical Engineering/Manufacturing Engineering	27 Jun – 07 Jul 2003

Visitors/Visiting Lecturers

Professor R Blake from NTNU University, Norway lectured some topics on Computer Vision and Image Processing to Computer Science and Engineering and Mechatronics (final year students) from 14 September to 10 October 2002 on a voluntary basis.

Professor Celerier from Limoges, France visited the Faculty on 17 March 2003. He headed a delegation from University of Limoges.

Mr S Chevillard, Human Resource Manager of Socota Textile Mills, along with the Human Resource Manager of Cotona, Madagascar visited the Department of Textile Technology on 29 July 2003.

Dr D Cooper and Professor J Biddlestone visited the Faculty from 16 to 26 June 2003 in connection with the Workshop on Constructed Wetlands for Treatment of Wastewater organised by the Faculty in collaboration with the British Council.

Dr A M Dubi from the Institute of Marine Sciences, University of Dar-es-Salam, visited the Faculty from 22 to 30 March 2003. He taught Coastal Engineering (CIVE 5307) to MSc Environmental Engineering students.

Dr A Morris visited the Faculty from 12 August to 5 September 2002. During his visit, he taught Procurement Management module to MSc Project Management Level 2 students.

Professor Pascal Rakatobø, Vice Chancellor, University of Antananarivo, Madagascar, visited the Department of Textile Technology on 26 March 2003.

STAFF MATTERS

Appointments

Dr C W Chan Chim Yuk, Associate Professor from the Civil Engineering Department was appointed Registrar with effect from 28 July 2003.

Mrs V Dookun assumed duty as Assistant Lecturer/Lecturer in the Department of Chemical/Sugar Engineering on 2 September 2002.

Mr M A Hosany assumed duty as Assistant Lecturer/Lecturer in the Department of Electrical and Electronic Engineering on 2 September 2002.

Mr K K Khedo assumed duty as Assistant Lecturer/Lecturer in the Department of Computer Science and Engineering as from 3 January 2003.

Mr C P Khedun assumed duty as Assistant Lecturer/Lecturer in the Department of Civil Engineering with effect from 1 July 2003.

Mr D K Maripuri assumed duty as Assistant Lecturer/Lecturer on 10 February 2003 on a two-year full time contractual basis in the Department of Computer Science and Engineering.

Mr B Misra assumed duty as Computer Systems Engineer on a two-year contract basis with effect from 30 September 2002.

Miss Z Mungloo assumed duty as Assistant Lecturer/Lecturer in the Computer Science and Engineering Department on 1 October 2002.

Mr G Ramsawock assumed duty as Assistant Lecturer/Lecturer in the Department of Electrical and Electronic Engineering on 2 September 2002.

Miss H Rughoonundun assumed duty as Assistant Lecturer/Lecturer on a two-year contract basis in the Department of Chemical & Sugar Engineering on 2 September 2002.

Mr S Z Sayed Hassen assumed duty as Assistant Lecturer/Lecturer in the Department of Electrical and Electronic Engineering with effect from 9 September 2002.

Mr V Seebaluck assumed duty as Assistant Lecturer/Lecturer in the Chemical and Sugar Engineering Department as from 2 September 2002.

Mr A Seeboo assumed duty as Assistant Lecturer/Lecturer in the Department of Civil Engineering with effect from 1 July 2003.

Promotions

Name	Post	Effective Date
Mrs S Baichoo	Senior Lecturer	1 September 2002
Dr (Ms) R D Sooknah	Senior Lecturer	1 September 2002

Study Leave

Dr D K Hurreeram was granted study leave from 14 January to 14 April 2003 to proceed to the University of Huddersfield, United Kingdom, in connection with the completion of the writing up of his PhD thesis.

Dr R Jeetah was granted study leave from 1 October 2002 to 1 April 2003 in connection with the Commonwealth Post Doctoral Fellowship Award at the University of Cambridge, United Kingdom under the Commonwealth Scholarship and Fellowship Plan.

Mr U Kokil was granted one year study leave with effect from 13 August 2002 to pursue an MBA degree in Computer Graphics/Design at Rochester Institute of Technology, New York, USA.

Mr O Moonian was granted study leave from 22 June to 25 August 2002 to proceed to Lancaster University, United Kingdom in connection with his PhD under the ASD programme.

Mr H Ramasawmy was granted six months study leave from 18 August 2002 to 17 February 2003 for research attachment to the Centre for Non Traditional Manufacturing Research (CNMR) of the University of Nebraska/Lincoln, USA under the Fulbright Scholarship Programme.

Mr R Ramdhany was granted study leave from 15 September 2002 to 15 September 2003 to enable him to read for an MSc in Interactive Distributive Systems at Lancaster University, United Kingdom under the Chevening Part-Cost Scholarship from British Council.

Dr S Rosunee resumed duty on 23 December 2002 after being on an ACU Scholarship for 18 months at UMIST, Manchester, UK.

Dr R D Sooknah resumed duty on 3 March 2003 after being on a Fulbright Scholarship for 11 months at the University of Florida.

Resignation

Mr M N A Khodabocus resigned from the post of Assistant Lecturer /Lecturer with effect from 29 March 2003.

Dr R Panray Beeharry resigned from the post of Senior Lecturer with effect from 5 March 2003.

Extension of Contract

Mr C P Francois was granted an extension of contractual appointment as Senior Lecturer up to end of December 2003.

Mrs A S Kharkar's contract as Lecturer was extended from 23 January to 31 July 2003.

Membership / Nominations on National and International Bodies

- Mr M A Hosany - Member of Institute of Electrical and Electronics Engineering (IEEE)
- Dr. D K Hurreeram - Corporate Member, Institution of Engineers, Mauritius
- Mr N Kistamah - Chairperson, Technical Committee on Tissue Products, MSB
- Member of International Affairs Committee, University of Mauritius
- Dr (Mrs) R Mohee - Member of Technical Advisory Committee on Pig Wastes. Ministry of Environment
- Dr T Ramjeawon - Chairman of the Mauritian Human Dimensions Programme (HDP) Committee. This national committee is supported by the International Human Dimensions Programme (IHDP).
- Member of the Scientific Steering Committee for the International Workshop on Quality of LCI Data, Karlsruhe, Germany.
- Member of the Life Cycle Inventory (LCI) Draft Author Team of the LCI Definition Study as part of the Life Cycle Initiative of UNEP/SETAC.

- Mr O P Seejore
- Member of Technical Committee on Used Oil Disposal, Ministry of Environment.
 - Chairman Sub Committee on Steel Wires . Mauritius Standards Bureau.
 - Member of Advisory Committee for the National Quality System Certification Scheme, Mauritius Standards Bureau.
 - Chairman, Technical Advisory Committee on Motor Vehicle Studies , IVTB.
- Mr S Venkannah
- Chairman, Subcommittee on Tubes and Hoses for Liquefied Petroleum Gas for Domestic Gas Appliances , Mauritius Standards Bureau.

STUDY ATTACHMENTS / ATTENDANCE AT SEMINARS

Dr M E Allybokus and Dr (Ms) M D Nowbuth organised a short course in Water Quality in Rodrigues from 23 to 25 October 2002.

Mr S Baichoo attended the 7th International Symposium on Communication Theory & Applications (ISCTA 2003) at St. Martin s College, United Kingdom from 12 to 21 July 2003 and presented a paper entitled A blocking scheme to reduce error propagation in Huffman Coding .

Dr A C W Chan Chim Yuk was appointed as Chairman of the Local Organising Committee for the Conference for Rectors, Vice-Chancellors and Presidents of African Universities (COREVIP) from 14-21 March 2003.

Dr K Elahee attended the JournØe Scientifique Energie et Environnement dans l Ocean Indien organised by the University of the Indian Ocean in RØunion Island from 25 to 27 November 2002 and presented a paper .

Mr M A Hosany attended the Doctoriales 2003 de L OcØan Indien , University of Mauritius, 22-29 March 2003.

Dr D K Hurreeram attended the First Joint International Conference on the European Operations Management Association and the Production and Operations Management Society in Italy from 16 to 27 June 2003.

Dr R Mohee attended the following:

- (i) International Conference on Organics Recycling (ORBIT 2003) in Australia from 24 April to 6 May 2003 and presented two papers.
- (ii) A one-week course on General Hazardous Waste and Management organised by Basel Convention Regional Centre in Pretoria, South Africa from 7 to 12 July 2003.
- (iii) JournØes de la Recherche at UniversitØ de la RØunion in November 2002 and presented a paper.
- (iv) The 2nd Regional Compost Network Workshop in South Africa from 7 to 9 October 2002.

Dr M D Nowbuth attended a training workshop on Water Resources Assessment in Pretoria, South Africa from 17 to 21 February 2003. She was a member of the Organising Committee of COREVIP Conference for Rectors, Vice-Chancellors and Presidents of African Universities from 14-21 March 2003.

Mr A K Ragen attended the Rencontres Internationales Pluridisciplinaires sur La Canne: une passion partager. Perspective de dØveloppement de la canne sucre en milieu insulaire: approches technico-Øconomiques, sociales et culturelles , 2 to 5 October 2002 in RØunion Island. The workshop was organised by the SEML RØunion Museo. He presented two papers.

Mr H Ramasawmy, visited the Centre for Non Traditional Machining Research, University of Nebraska-Lincoln, Nebraska, USA under the Fulbright Junior Staff Development Program from August 2002 to February 2003.

Dr T Ramjeawon attended the following:

- (i) International Conference on Water and Wastewater Perspectives of Developing countries organised by IIT Delhi from 10 to 13 December 2002 and presented a paper.
- (ii) ISIE Conference in Michigan, USA from 27 June to 4 July 2003.

Ms S Rojubally attended the International Ocean Institute Trainers Programme at Dalhousie University, Canada from 29 May to 8 August 2003.

Dr S Rosunee was invited by the Textile Emergency Support Team (TEST) to its first meeting at Domaine Les Pailles on 31 July 2003.

Professor H C S Rughooputh attended the following:

- (i) COREVIP Conference for Rectors, Vice-Chancellors and Presidents of African Universities from 14 to 21 March 2003 at Grand Bay, Mauritius.
- (ii) The 3rd International Workshop on Development in Microelectronics Role of VLSI in MEMS New Delhi, from 4 to 6 December 2002. He presented two papers.
- (iii) Computer Security Workshop at Howard University and The Jackson State University from 12 to 25 January 2003. He presented two papers at Jackson University and one in Washington.

Mr V Seebaluck participated in the 1st CARENDA Workshop in London from 19 to 25 May 2003.

Mr O P Seejore attended the International Training course on Solar Energy, held at the Indian Institute of Technology, Mumbai from 6 to 17 January 2003.

Dr R Sooknah benefited from a study attachment at the Soil & Water Science Department of The University of Florida (March 2002 February 2003) under the Fulbright Senior Scholar Program.

Mr K Veeramootoo was a member of the Organising Committee of COREVIP Conference for Rectors, Vice-Chancellors and Presidents of African Universities from 14-21 March 2003.

Mr S Venkannah attended the AFRICON 2002 Conference in George, South Africa from 30 September to 5 October 2002 and presented a paper on Reducing Full Consumption of CO₂ Emission by Properly Selecting the Parameters for Pool Heating .

VISITS

Dr M E Allybocus proceeded to Kenya for external examination purposes at the Moi University from 19 to 27 July 2003.

Mr N Kistamah visited the following textile machine manufacturers from 27-30 January 2003

- Proll and Lohmann, Dusseldorf, Germany
- MHM Printing Machine Manufacturers, Zurich, Switzerland
- He also visited the following spinning mills in India from 17-27 Oct 2002
 - Sanghi Spinners India Ltd, Hyderabad
 - Indocount Spinning Mills, Baroda
 - Arvind Spinning Mills, Ahmedabad

Mr A K Ragen visited the School of Chemical Engineering of the University of Birmingham and the Agricultural Requisites and Mechanical Company (ARM) Ltd

His visit was sponsored under the British Council link in Chemical & Environmental Engineering. The visit took place from 22 March 6 April 2003.

Dr T Ramjeawon was selected by the Rockefeller Foundation selection committee for a residency at the Bellagio Conference Centre in Bellagio, Italy to work on a manuscript on the Life Cycle Assessment of Cane Sugar in Mauritius, 25 July 23 August 2002.

He was also sponsored by the International Society of Industrial Ecology (ISIE) to attend and present a paper at the Second International Conference of the International Society for Industrial Ecology, 29 June - 2 July 2003, University of Michigan, Ann Arbor, U.S.A

ACTIVITIES ORGANISED BY THE FACULTY

Seminar

Mr A K Ragen and Dr R Sooknah conducted a two-day seminar organised by the Chemical and Sugar Engineering Department jointly with the British Council on Constructed Wetlands for Treatment of Wastewater , 19 & 20 June 2003. The resource persons included Professor Biddlestone from the University of Birmingham and Dr David Cooper, Managing Director of Agricultural Requisites and Mechanical Company Limited (ARM), UK. The objectives of the Seminar were to create an awareness on the importance of Wetlands and on the environmental consequences of the current methods of disposal of domestic wastewater. The Seminar also introduced the concept of constructed wetlands as a wastewater treatment method.

Fashion Show

Final year students of the BSc (Hons) Textile & Fashion Design hosted a highly acclaimed Fashion Show on 31 May 2003.

PAPER PRESENTATION AT CONFERENCES/SEMINARS/ WORKSHOPS

D K Hurreeram, and D Little, Manufacturing Strategy: A Practical Approach , Second International Conference of the European Operations and Management Association, University of Padova, Italy (June 2003).

D K Hurreeram, and D Little, International Apparel Trade and Developing Economies in Africa , Proceedings of Fourth International Conference, International Academy of African Business and Development, University of Westminster, London (June 2003).

R Mohee

Waste management in a Poultry slaughterhouse. Biological processing of organics. Advances for a Sustainable society. ORBIT 2003. Centre for Organic Waste Management and Environmental Technology Centre. Perth, Australia.

Appropriateness of the Sequential Batch anaerobic composting (SEBAC) Technology as a treatment method for organic wastes in Mauritius. Biological processing of organics. Advances for a Sustainable society. ORBIT 2003. Centre for Organic Waste Management and Environmental Technology Centre. Perth, Australia.

Identifying Cleaner Production Opportunities in a Margarine Industry in Mauritius. Biological processing of organics. Advances for a Sustainable society. ORBIT 2003. Centre for Organic Waste Management and Environmental Technology Centre. Perth, Australia.

Etude préliminaire de la valorisation du biogaz sur les Centres d'Enfouissement Technique de Mare-Chicose (Ile Maurice) et de Sainte-Suzanne (Ile de la Réunion). Journées de la Recherche 2002. Energie et Environnement. Université de la Réunion. Novembre 2002.

Composting in the African region. Workshop organized in Stellenbosch. Agricultural Research Council, South Africa. October 2002.

A K Ragen, Rencontres Internationales pluridisciplinaires sur la canne: Une passion partager. Perspective de développement de la canne sucre en milieu insulaire: approches technico-économiques, sociales et culturelles held on the 2-5 October in Reunion island. The workshop was organised by the SEML Réunion Museo and held in the Muséum Stella Matutina at Piton St Leu.

H C S Rughooputh:

- (i) ICT Programmes at UoM , Computer Security Seminar , Jackson State University, USA, Jan 2003.
- (ii) Optical MEMS devices for Telecommunications , Third International Workshop on Development in Microelectronics- Role of VLSI in MEMS, New Delhi, 2-6 Dec 2002
- (iii) New Methods for automatic PCB Inspection , Third International Workshop on Development in Microelectronics- Role of VLSI in MEMS, New Delhi, 2-6 Dec 2002

H C S Rughooputh and S D D V Rughooputh, Self-generated Watermark for Image Copyright Protection and Authentication, Computer Security Seminar, Jackson State University, USA, Jan 2003.

S Venkannah

Surface Characteristics of Ultrasonically Assisted Autogeneous Welding, The International Conference on Applied Mechanics and Materials (ICAMM) 2003, Durban, South Africa, 21-23 Jan 2003.

2D Surface Profile of Ultrasonically Assisted Autogeneous Welding, The International Conference on Applied Mechanics and Materials (ICAMM) 2003, Durban, South Africa, 21-23 Jan 2003.

Reducing Fuel Consumption and CO₂ Emission by Properly Selecting the Parameters for Pool Heating, AFRICON 2002 Conference, George, South Africa, 2-4 Oct 2002.

PUBLICATIONS

Hurreeram D K Development of a Manufacturing Strategy for Apparel Manufacture in Mauritius using the Systems Modelling Approach, PhD thesis, University of Huddersfield, UK.

Mohee R and Ramjeawon T (2003) Appropriateness of the Sequential Batch Anaerobic Composting (SEBAC) Technology as a Treatment Method for Organic Waste in Mauritius. Proceedings of the fourth International Conference of the Organic Recovery and Biological Treatment (ORBIT) Association. 30 April - 2 May 2003; Perth, pp 341-350.

Ragen A K and Ramjeawon T (2002). L'effet d'une surcharge organique sur la performance d'un digesteur anaerobique lit de boue flux ascendant (UASB) traitant les eaux usées d'une sucrerie de canne. Proceedings of Rencontres Internationales Pluridisciplinaires sur la canne Perspective de développement de la canne sucre en milieu insulaire: approches technico-économiques, sociales et culturelles, Réunion. Island, 2-5 October 2002.

Ragen A K and Ramjeawon T (2002). Traitement des eaux usées des sucreries de canne par le procédé de digestion anaerobique lit de boue flux ascendant (UASB). Proceedings of Rencontres Internationales Pluridisciplinaires sur la canne Perspective de développement de la canne sucre en milieu insulaire: approches technico-économiques, sociales et culturelles, Réunion Island, 2-5 October 2002.

Ramessur R T and Ramjeawon T (2002). Determination of lead, chromium and zinc in sediments from an urbanized river in Mauritius. Environment International, Vol 28, No 4, pp 315-322.

Ramjeawon T (2002) Water Security for the island of Mauritius: Assessment of long range patterns and problems through vulnerability indices. Proceedings of the International Conference on Water and Wastewater. Perspectives of Developing Countries. 11-13 December, 2002. IIT, New Delhi, pp 97-104.

Ramjeawon T (2003). Life Cycle Assessment (L.C.A) of cane sugar production on the island of Mauritius. Paper presented at the Second International Conference of the International Society for Industrial Ecology. 29 June - 2 July 2003. University of Michigan, Ann Arbor, USA. Paper and presentation available on the website: <http://www.yale.edu/is4ie>.

Rosunee S, Carr CM, Hibbert S Surface Chemical Analysis of Tencel treated with a cationic fixing agent, Journal of Materials Science, 38 (10), 2003, 2179-2185.

Soyjaudah K M S and Hosany M A: Combined Huffman code and Generalized Array Codes employing Phase/Frequency Modulation, Journal of circuits, systems and computers, University of Rochester, New-York, Vol. 12, No.1, pp.93-109, Feb. 2003, U.S.A.

Venkannah S, Cost Comparison of Different Pool Heating Systems, Ecology, Environment and Conservation Journal, India, Vol.8 (3), 2002, pp 207-214.

Venkannah S and J G Lamaletie, Waste Energy Recovery to Support Small and Medium Enterprises, Ecology, Environment and Conservation Journal, India, Vol.8 (3), 2002, pp 215-221.