About the Contributors

**Firoz Alam** is an Associate Professor and Deputy Head of School for Teaching and Learning in the School of Aerospace, Mechanical and Manufacturing Engineering at RMIT University. He completed his PhD in road vehicle aerodynamics and aero-acoustics from the same university in 2000. He completed his Masters degree combined with Bachelors degree in aeronautical engineering with 1st class honours from Riga Civil Aviation Engineers Institute, Latvia, in 1991. Dr. Alam’s research interest is in road vehicle aerodynamics, train aerodynamics, sports aerodynamics, HVAC, noise, and vibration. He has also strong interest in continuous improvement of teaching and learning methodology and offshore learning in engineering education. Associate Professor Alam has developed “a there step teaching and learning method for thermo-fluid labs” for undergraduate engineering students. He was a recipient of 2004 RMIT University Teaching Award. He has over 150 peer reviewed publications that include scholarly book, book chapters, journal articles and conference papers.

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**Nadine Adams** is a Lecturer with the Academic Learning Services Unit (ALSU) at CQUniversity Australia. In this role she teaches enabling mathematics at several levels and in different modes of delivery. Nadine is instrumental in enabling resource development within the ALSU Mathematics team. Present research interests include the use of technology, namely the tablet PC, to provide individualised assistance and personalised feedback to external students. Nadine is interested in the causes of the worldwide mathematical deficit problem.

**N.A. Ahmed** obtained his PhD (1989) from Cranfield University, UK. He is currently the Head of Aerospace Engineering at the University of New South Wales, Sydney, Australia. Prior to this he worked as Senior Design Engineer at Kent Industrial Measurements, UK and as Manager of Low Speed Compressor Test Facility, UK the largest such industrial research facility in Europe. He is involved with Aerodynamics research with a bias towards environmentally friendly outcomes. He has developed novel flow control techniques, advanced flow diagnostic techniques, designed several wind tunnels and prize winning commercial fluid mechanical products of international acclaim. He has published well over 150 journal and conference papers and is regularly invited to give plenary/keynote lectures at different international conferences.
Md. Al-Amin is teaching Biostatistics for the last 5 years in the School of Public Health and Preventive Medicine, Monash University. He has several years of teaching experience in Engineering, Management, Mathematics and Statistics fields in various universities. He has received his Bachelor of Science degree in Mechanical Engineering from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Masters in Industrial Engineering and Management from AIT, Bangkok, Thailand, Graduate Diploma in IT (Software) from CQU, Australia, Masters of Health Science, Monash University, Australia and PhD in Operations Research from Swinburne University of Technology, Australia. He has also worked as a Software engineer in Asset management Software industry for almost 12 years in Australia.

Quamrul Alam is an Associate Professor and Program Director (Master of Public Policy and Management) in the Department of Management, Monash University. He received his PhD in development administration from Flinders University, Australia and an MA in Economics from Manchester University (UK). Prior to joining Monash, Dr Quamrul Alam taught at Latrobe University, the Australian National University, Victoria University and Dhaka University. In addition to his research interest in public administration, public governance, public private partnership, globalisation, international business, and supply chain performance, he is actively involved in quality enhancement of learning and teaching both in undergraduate and postgraduate levels. He has contributed to more than 100 peer reviewed publications including, book, book chapters, journal articles and conference proceedings. Dr Quamrul Alam has published several research papers on transnational education and postgraduate supervision with particular emphasis on online and technology enhanced education. He developed a pedagogy that permits framework learning aimed at bringing non-business/economic students up to speed with the topic using online technology platforms and resources.

Eliathamby Ambikairajah received his BSc(Eng) degree from the University of Sri Lanka and received his PhD degree in Signal Processing from Keele University, UK. He was appointed as Head of Electronic Engineering and later Dean of Engineering at the Athlone Institute of Technology in the Republic of Ireland from 1982 to 1999. He is currently the Head of School of Electrical Engineering and Telecommunications, University of New South Wales (UNSW), Sydney, Australia. His research interests include speaker recognition, language recognition, emotion detection and engineering education. He received the Vice-Chancellor’s Award for Teaching Excellence in 2004 for his innovative use of educational technology, the School Awards for Teaching Excellence in 2003, and Academic Management in 2001. Professor Ambikairajah is currently a Fellow and a Chartered Engineer of the IET UK and of Engineers Australia (EA) and a Member of IEEE.
George P. Banky received his degrees of B.E (Elec) and MEngSc from the University of Melbourne, Australia, in 1969 and 1971, respectively. In 2010 he completed a PhD in tertiary education at the Centre for the Study of Higher Education, University of Melbourne, Australia. For the past thirty-four years he has been an academic with Swinburne University of Technology in Australia. George is a Fellow of the Institute of Engineers Australia and a founding member of his faculty’s “Engineering and Science Education Research Group.” He is the research team leader for an Australian Government Office of Learning and Teaching grant. His research interests include: synchronously supervised online experiential learning; facilitating student deep-learning with electronic circuit simulation tools; using collaboration software to improve student engagement in face-to-face computer-screen-based tutorials, and the investigation of the hurdles faced by students transitioning into tertiary engineering.

Aaron Blicblau is a Senior Lecturer and Subject Convenor of a first year subject involving experimental learning and is the final year project coordinator for the mechanical engineering stream. He worked as a project engineer for 10 years before commencing his education and teaching interests. He is also a founding member of the Engineering Science Education Research Group. In 2007, he was the recipient of an individual Carrick Citation Award for Outstanding Contribution to Student Learning. In 2009 he was presented with the Vice-Chancellor’s Intersectoral Collaboration Teaching Award.

Richard Corkish graduated with distinction as a Communications Engineer from the Royal Melbourne Institute of Technology in 1986 then worked with the CSIRO Division of Radiophysics on satellite earth-station antenna design and testing before studying for the PhD degree under the supervision of Professor Martin Green at the University of New South Wales’ Centre for Photovoltaic Devices and Systems. After a brief period working with the Rainbow Power Company in Nimbin, he has worked on solar cell theory, applications and education at UNSW. He has been Head of School at the School of Photovoltaic and Renewable Energy Engineering, UNSW since 2003 and, since 2013, become Chief Operating Officer of the Australian Centre for Advanced Photovoltaics, which represents the Australian partners in the Australia-US Institute for Advanced Photovoltaics, supported by the Australian Solar Institute and the Australian Renewable Energy Agency.

Antony Dekkers is currently Senior Lecturer with the Academic Learning Services Unit at CQUniversity Australia and has had seventeen years’ experience in delivering tertiary mathematics. He is also part of a team developing mathematics material used within the unit. His role includes delivery and development of mathematics courses in the STEPS program, assisting undergraduate students with the mathematics component of their study program and small group learning support sessions in a range of mathematics topics. Current research interests include the development and delivery of online-based resources for teaching within the tertiary system using the Tablet PC.
About the Contributors

Ray Eaton was awarded the BE (Electrical) in 1992 and PhD (Electrical Engineering) in 2002 from the University of New South Wales. After serving as a Lecturer within the School of Electrical Engineering and Telecommunications at UNSW since 2000, he was appointed Director of Academic Studies within the School in 2009, overseeing all academic programs and learning and teaching within the School. Since his appointment in 2000, he has taught a large variety of courses within the School, including fundamental electrical engineering courses, discipline-specific courses in systems and control, and post-graduate courses. Outside of a passion for learning and teaching, Dr Eaton’s research interest is in automation and control for agriculture.

Roger Hadgraft is an Innovation Professor in Engineering Education in the College of Science, Engineering and Health at RMIT University. He is a civil engineer with more than 17 years involvement in leading change in engineering education, with a particular focus on technology enabled learning and problem/Project-Based Learning (PBL) at RMIT, Monash and Melbourne Universities. In 2009-10, he was ALTC Discipline Scholar in Engineering and ICT with Prof Ian Cameron, developing the draft national academic standards. Prof Hadgraft is a member of the editorial advisory board for the *Journal of Engineering Education* (JEE) and the *Australasian Journal of Engineering Education*. He an active member of the Australasian Association for Engineering Education (AAEE) and its 2008 President, the American Society for Engineering Education (ASEE), the European Society for Engineering Education (SEFI) and the Higher Education Research and Development Society of Australasia (HERDSA). He has written a series of books, book chapters, journal articles and peer reviewed conference papers on engineering education and technology utilisation.

Sidney S. H. Ho is a Senior Lecturer of the Engineering Discipline at the Hong Kong Institute of Vocational Education. He received tertiary education in the United Kingdom, and completed his BSc in Aeronautical Engineering at the University of Manchester, BA in Mathematical Science at the Open University, MSc in Computational Fluid Mechanics and PhD in Aeronautics at the University of Salford; and he received management and teacher training at the Vocational Training Council (Hong Kong) and the Hong Kong Institute of Education respectively. Dr. Ho has been working in the defense, power generation and information technology industries; his research interest is in aero-thermo-fluid-mechanics, flight mechanics, aircraft stability and control, solid mechanics, turbo & reciprocating machineries, and information technology for engineering. He is a Chartered Engineer, a Registered Teacher and a licensed light airplane pilot. He has a strong interest in effective pedagogies for science and engineering education, especially in transnational settings.

Prue Howard is a senior lecturer and Convenor of the Future Engineering Education Directions (FEED) scholarship group at CQUniversity. She has BEng (Mech), ME in Dynamics and a Professional Doctorate in Transdisciplinary Studies. She moved to the higher education sector in 1990 after a career as a mechanical designer in industry. A love of teaching has kept her there since. Prue has received National Awards in the areas of Women in Engineering and Curriculum Innovation, as well as having received the University’s Vice-Chancellor’s Award for Quality Teaching and the Deans Award for Teaching Excellence twice. Her research has centred around safe design and engineering education, resulting in significant publications and grants since 1994.
M. N. Islam obtained his first degree in engineering (a combined bachelor’s and master’s degree in Mechanical Engineering) from the Technical University of Varna, Bulgaria. He obtained his M.E. (Hons) in Mechanical Engineering from the University of Wollongong, Australia and his PhD in Mechanical and Manufacturing Engineering from the University New South Wales, Australia. Currently, he is working as a senior lecturer at the Department of Mechanical Engineering, Curtin University, Australia.

Matthew A. Joordens (Member – IEEE, Fellow – The Institution of Engineers Australia, Member – AAEE, Mensa member) began his career with Industrial Control Technology designing control systems to automate various different industrial processes. For five years, he designed microprocessor-based control systems for companies such as Ford, Pilkington Glass, Webtek and Blue Circle Southern Cement. He then moved to Deakin University and wrote their first electronics units. Using his industrial experience he designed one of the first Australian Engineering degrees in Mechatronics that still runs at Deakin. He currently lectures units in Digital electronics, Microcontrollers, Robotics, and Artificial Intelligence. For over 20 years he has used Design/Problem Base Learning and his engineering education research has focused on this area. His other research focus is in robotics and is centred on swarm robotics, both on land and underwater. His PhD is in underwater swarm robotics.

Alexandra Kootsookos received her PhD in Materials Engineering at the University of Queensland, Australia, in 1995. Thereafter, she worked with the Cooperative Research Centre for Polymer Blends, where she was involved in a number of projects relating to the durability of composite materials. Since joining RMIT University in 1999, she has been heavily involved in the teaching instruction of the first and second year students within the School of Aerospace, Mechanical, and Manufacturing Engineering. She is has used a blended learning environment within this context since 2000. From 2004–2009 she was the Program Director for the Advanced Manufacturing and Mechatronics program and subsequently she has been the Year Coordinator for first and second year, within the School, with a particular focus on transitional issues and program structure in the early years of the engineering degrees.

Asta Kybartaitė received the B.Sc. degree from Kaunas University of Technology, Kaunas, Lithuania, in 2004, the M.Sc. degree in biomedical engineering and Ph.D. degree in Technology from Tampere University of Technology, Tampere, Finland, in 2006 and 2010, respectively. She is currently a post-doctoral fellow at Lithuanian University of Health Sciences (LUHS), Neuroscience Institute, Kaunas, Lithuania. Since 2011, she has been working as a researcher at LUHS. Her research work has been connected to neuroscience, biomedical engineering and e-learning; the main research interests are in computational modeling of physiological systems and modern educational technologies.

Roger La Brooy is the Associate Professor of Advanced Manufacturing Engineering in the School of Aerospace, Mechanical and Manufacturing Engineering at RMIT University, Australia. He was the former Head of Aerospace Engineering at the University. He completed his PhD at Monash University Australia, has worked for the Department of Defence and with Boeing Australia. His research interests are focussed on optimisation using Simulated Annealing and Genetic Algorithms, High-Speed Automation and the Kinematics of Robots. In learning and teaching he focusses on developing more active teaching methods within the discipline of control systems.
About the Contributors

Jaakko Malmivuo received the M.Sc. and Ph.D. degrees from Helsinki University of Technology (now Aalto University), Espoo, Finland, in 1971 and 1976, respectively. In 1976 he was appointed Associate Professor and in 1987-2010 Professor of Bioelectromagnetism at Tampere University of Technology, Tampere, Finland. Since 2010 he has been at Aalto University. He has served as Visiting Professor at Berlin (West) (1988), Halifax (1989), Tokyo (1993), Barcelona (2006) and Aizu-Wakamatsu (2012). He has over 600 scientific publications. In 2003, he was appointed Fellow, IAMBE, in 2007 Fellow IEEE, in 2008 Honorary Member of the Finnish Society for Medical Physics and Medical Engineering and in 2012 Fellow EAMBES.

Fae Martin began her professional career as a civil engineer specialising in structural design. Fae currently holds the position of Head of Engineering Programs at CQ University, providing operational and strategic leadership for the suite of undergraduate and postgraduate engineering programs. She was Head of Program in 2011 when the CQ Uni undergraduate engineering programs were granted full 5 year accreditation by Engineers Australia. These engineering programs have a strong focus on contextual learning with the inclusion of co-op work placements and project based learning. The programs are offered on 4 geographically dispersed campuses as well as in distance mode. During her time in program management, Fae has developed a strong interest in curriculum design and work integrated learning.

John P.T. Mo obtained his PhD from Loughborough University in Manufacturing Engineering. He is currently Discipline Head of Manufacturing and Materials Engineering at RMIT University. His group covers areas in manufacturing, materials science, sustainable systems, supply chain, mechatronics, autonomous systems. Prior to joining RMIT, John is Team Leader in the Division of Manufacturing and Infrastructure Technology, CSIRO, Australia. In the 11 years in CSIRO, he led several large scale international projects involving multi-disciplinary teams in the development of advanced manufacturing systems and the integration of manufacturing and supply chain. Before moving to Australia in 1991, John was the Principal Lecturer in City Polytechnic of Hong Kong responsible for the mechatronics stream in the Department of Manufacturing Engineering.

Jamal Naser graduated with a PhD from Imperial College in the area of Computational Dynamics. His major research interests and areas of expertise involve: industrial application of computational fluid dynamics (CFD), involving complex geometry, multiphase flow, chemically reacting (e.g. coal combustion) flows, and modelling of complex reacting flows in metal making. His expertise in these research areas forms a significant nexus with his teaching and education interests especially in the area of capstone projects.
Kriengsak Panuwatwanich is a Lecturer in Engineering and Project Management at Griffith School of Engineering, Griffith University, Queensland, Australia. He obtained his Bachelor’s degree (Civil Engineering) from Thammasat University in Thailand, a Master of Engineering Science (Engineering Construction and Management) from the University of New South Wales and a Ph.D. from Griffith University, Australia. He has worked as an academic since 2000, teaching at the university level in the areas of construction, engineering, and project management. He is an active member of Engineers Australia Gold Coast Regional Group Committee, and a registered civil engineer in Thailand with years of experience in the field of construction management. His research interests encompass the areas of engineering, construction and project management, as well as engineering education.

Shirish P. Patil is currently with the Department of Mechanical Engineering, National University of Singapore, as an Associate Professor. His responsibility includes teaching of core automotive engineering modules. Prior to joining National University of Singapore, Dr. Patil spent nearly thirty years in the industry including almost twenty years with Ford Motor Company (Dearborn, Michigan, USA) in vehicle research and development. Dr. Patil received his Ph.D. from University of Delaware (Newark, Delaware, USA) in 1984 and is a graduate of Indian Institute of Technology (Mumbai, India). His interests include teaching automotive engineering and research in vehicle development technologies.

Greg Plumb is an instructional designer with the Program and Courseware Enhancement group in the College of Science, Engineering and Health, RMIT University. He has worked in the College since its inception and before that with the Faculty of Engineering, RMIT University. He has wide industry experience with the Australian Broadcasting Corporation (as technical officer and workplace trainer), TAFE Off-Campus Coordinating Authority, RMIT University (as writer, editor and instructional designer), SAP South Africa (as online courseware developer), Colorbus (as documentation writer), and the Australian automotive industry – especially Ford and GMH (as workplace training materials developer).

A. Pramanik received the first degree in Mechanical Engineering from Bangladesh University of Engineering and Technology, Bangladesh. Then he completed Master and PhD degrees from National University of Singapore, Singapore and the University of Sydney, Australia respectively in Mechanical Engineering. Currently, he is working as a lecturer in Mechanical Engineering at Curtin University, WA, Australia.

Ataur Rahman is an Associate Professor in Water and Environmental Engineering in the University of Western Sydney, Australia. He has over 20 years’ experiences in water industries and academia. He obtained his B. Sc. Eng. degree from Khulna University of Engineering and Technology in Bangladesh, M. Sc. (Hydrology) degree from National University of Ireland Galway and PhD degree in Hydrology from Monash University in Australia. He has published 217 research articles, reports, and book chapters. He received the G. N. Alexander Medal from Engineers Australia. He is heavily involved with the revision of Australian Rainfall Runoff.
About the Contributors

**Alcínia Zita Sampaio** received her PhD in Civil Engineering from the Technical University of Lisbon, Portugal, and she is an Assistant Professor in the Department of Civil Engineering at the TU Lisbon, since 1999. She is teacher and supervisor of Technical Drawing and Computer Aided Drawing for Civil Engineering students, since 2001. She has been coordinating short courses: Implementation of BIM Technology in the AEC Industry (2013) and Introduction to Virtual Reality Technology applied on architecture and Engineering, (2010). The main research fields are BIM and Virtual Reality. She has been supervising doctoral theses and master’s thesis on the topic of BIM and she is the principal researcher in the financed projects Maintenance of Buildings supported on BIM (Building Information Modeling) Technology (2013-2014) and Virtual Reality Technology applied as a support tool to the planning of construction maintenance (2008-2010). She recently published articles in the journals Automation in Construction, ACE, ITcon IJEE, IJCIT, JCEA.

**Vidhyasaharan Sethu** received his B.E. degree from Anna University, India, and his MEngSc (Signal Processing) and PhD degrees from the University of New South Wales, Australia. He has been working as a Postdoctoral Fellow at the School of Electrical Engineering and Telecommunications at the University of New South Wales since January 2010. His research interests include emotion recognition, speaker recognition, and computational paralinguistics. Since his appointment in 2010, he has taught courses on signal processing, speech processing, and electrical system design within the School at both undergraduate and post-graduate levels. Dr. Sethu is a member of IEEE and ISCA.

**Ming Sheng** is currently the manager of the technical support group at the School of Electrical Engineering and Telecommunications at the University of New South Wales. While his early interest was in the area of electrical machines, power electronics and drives, he later diverted his interest to the research and development of educational technologies and has developed several novel solutions which greatly enhanced student’s ability for self-directed learning, including the Virtual Teaching Laboratory, the VC-Player software and the Distributed Teaching Laboratory. Dr Sheng has co-authored several publications on the implementation of novel educational technology and is the co-recipient of several major grants.

**Rodney Stewart** is an Associate Professor within the Griffith School of Engineering at Griffith University Gold Coast Campus located in the State of Queensland, Australia. He is a specialist in engineering and environmental management research, particularly related to the strategic implementation and management of sustainable water and energy systems. He also has a strong focus on engineering education research, covering topics such as international student learning, self-directed learning, and the conduct of work integrated PhD programs. He has published over 100 refereed publications.

**Aleksandar Subic** is a Professor and Dean of Engineering at RMIT University. He is well known educator and designer. He has vast interest in instructional teaching, research and development. Prof. Subic is also the Head of School, School of Aerospace, Mechanical and Manufacturing Engineering, RMIT University. He is an editorial member of several reputed international journals including the *European Journal of Engineering Education*. He has published several books and book chapters, and over 200 peer-reviewed journal articles and conference papers. He has strong research interests in technology-enabled engineering pedagogy and education design.