About the Contributors

Khairiyah Mohd Yusof is an Associate Professor in the Department of Chemical Engineering, University Teknologi Malaysia (UTM). She is the Director of the UTM Regional Centre for Engineering Education (RCEE), which promotes meaningful research and scholarly practice in engineering education, and manages the PhD in Engineering Education program. Since 2011, she is the Secretary of the Society for Engineering Education Malaysia (SEEM). Prior to becoming the Director of RCEE, Dr. Khairiyah was the Deputy Director at the Centre for Teaching & Learning (2008 – 2011), and the Head of the Chemical Engineering Department (2006-2008). Her engineering education research focuses on innovative teaching and learning practices, especially Cooperative Learning (CL) and Problem-based Learning (PBL), first year experience, and sustainable development in engineering education. A practitioner of Cooperative Problem-based Learning (CPBL), she regularly conducts training for academic staff from institutions of higher learning, especially in student-centered teaching and learning methods.

Naziha Ahmad Azli is an Associate Professor in the Faculty of Electrical Engineering at Universiti Teknologi Malaysia (UTM). She is currently the Laboratory Manager of the Faculty and a member of the IEEE Education Society and the Society of Engineering Education Malaysia (SEEM). She was the 4th Year Laboratory Coordinator at the Faculty who initiated the Problem-based Laboratory in 2007. She was also a member of the Academic Quality Committee that is responsible for preparing the documentations and data for the purpose of its engineering programs’ accreditation. Dr. Naziha has written many papers that are published in local as well international conference proceedings and academic journals. The publication includes those related to her technical field of research as well as innovative T&L methods and experiences. She has recently been involved in giving a series of talks on outcome-based education to all non-academic staff at UTM.

Azlina Mohd Kosnin is a Lecturer at the Faculty of Education, Universiti Teknologi Malaysia. She is currently in charge of the postgraduate programme for Educational Psychology, postgraduate diploma of teaching as well as teacher development programmes at her faculty. She has more than 15 years of experience teaching education foundation subjects to undergraduates and various subjects related to the field of Educational Psychology at Master’s and PhD levels. Her research interests among others include student motivation, student self-regulation in learning, student development and intellectual maturity. She supervises Master’s and PhD students’ research on various topics including research related to engineering education.
Sharifah Kamilah Syed Yusof is a Senior Lecturer at Universiti Teknologi Malaysia. She earned her PhD in Electrical Engineering and M.EE in Communication from the same university in 2006 and 1994, respectively. She earned a BSc (cum laude) in Electrical Engineering in 1988 from George Washington University. She has taught post-graduate courses in Advanced Digital Communication and undergraduate courses in digital communication systems, signal and network, and digital logic. Her fields of specialization include wireless communication systems, broadband, OFDM-based systems, cognitive radio, and others.

Yudariah Mohammad Yusof is an Associate Professor at the Department of Mathematical Sciences, Faculty of Science, Universiti Teknologi Malaysia. Her particular specialization is on advanced mathematical thinking and problem solving. Her research interests are investigating opportunities for meaningful mathematics learning and innovative mathematics teaching at the tertiary level. This includes enhancing and supporting students’ use of their own mathematical powers, mathematical knowledge construction, higher order thinking and creative problem solving. She is greatly involved in engineering education specifically on the mathematical needs of prospective engineers. Currently, her research work focus on crafting relevant mathematical experiences and creating thinking space in engineering mathematics.

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Zubaidah Awang (Dr.) is an Associate Professor at the Language Academy, UTM. Her research interest is in the area of literacy education in particular, reading literacy, and more recently, on graduate employability.

Sabariah Baharun is currently an academic staff member of Malaysia-Japan International Institute of Technology at Universiti Teknologi Malaysia (UTM) International Campus in Kuala Lumpur. She has served UTM since 1984 with the Department of Mathematics, Faculty of Science. She earned her Bachelor and Master’s degree in Mathematics from Indiana State University and Ohio University, respectively. She then obtained her Doctoral degree in 2005 from UTM in Applied Mathematics with its focus on graphical modeling. Her research includes the graph theoretical concepts and applications in incineration systems and wireless networking. She is also actively involved with mathematical thinking and engineering educations research at UTM.

Nur Ayuni Shamsul Bahri is currently a PhD student of the Engineering Education program at Universiti Teknologi Malaysia (UTM). She obtained her Bachelor of Engineering (Electrical – Telecommunications) degree from UTM. She is a member of the Society of Engineering Education Malaysia (SEEM). To date she has co-authored several conference papers particularly on problem-based learning in laboratory practices. Her research interest is on measurement and evaluation in education. For her PhD work she is focusing on the design of rubrics for individual assessment in a Problem-based Learning laboratory.
Mohd Fadzil Bin Daud is a Senior Lecturer at the Faculty of Mechanical Engineering, Universiti Teknologi Malaysia. He has been teaching Engineering Design for the past 13 years. His field of interest includes Engineering and Computer Aided Design (CAD) and Engineering Education. He has to his credit 2 books and various articles related to CAD.

Mohd Zaki Daud lectures at the Faculty of Electrical Engineering, Universiti Teknologi Malaysia. He teaches various basic electrical engineering undergraduate subjects to engineering as well as non-engineering undergraduates. Although he is specialising in electrical engineering, his vast experience in teaching electrical engineering to undergraduates has generated a great passion for teaching and learning to enhance teaching techniques. Problems and difficulties faced by him in teaching his students motivated him to understand the process of student learning and development better. Thus, his research involvement is not only in the field of electrical engineering, but also in research related to student learning and development.

Duncan Fraser is an Emeritus Professor of Chemical Engineering at the University of Cape Town, where he was a member of the academic staff from 1979 to 2011. Professor Fraser’s one research area is in Process Synthesis, specifically Heat and Mass Exchanger Network Synthesis, making use of both Pinch Technology and Mathematical Programming. His other research area is Engineering Education, focused on improving student learning, both by curriculum reform and innovative teaching. He was a founder of the Centre for Research in Engineering Education (CREE) at UCT in 1996, and served as Director of CREE from 2000-2005. Professor Fraser is currently the Secretary-General of the African Engineering Education Association (AEEA), the Chair of the Governing Board of the Research in Engineering Education Network (REEN) and a Vice-President of the International Federation of Engineering Education Societies (IFPES).

Nor Farida Harun started her career as a tutor at the Department of Chemical Engineering, Faculty of Chemical Engineering, Universiti Teknologi Malaysia (UTM), in 2007. She has been actively involved in cooperative problem-based learning (CPBL) when tutoring a third-year chemical engineering course, Process Control and Dynamics. She is now pursuing her PhD at McMaster University, Canada in Chemical Engineering.

Syed Ahmad Helmi is as Senior Lecturer in the Faculty of Mechanical Engineering, Universiti Teknologi Malaysia, and is affiliated to the Regional Centre for Engineering Education, Universiti Teknologi Malaysia. He has a Bachelor of Science in Mechanical Engineering and a Master in Mechanical Engineering and a PhD in Engineering Education. He is among the first cohort of graduates of the PhD in Engineering Education program from Universiti Teknologi Malaysia. His research area is problem solving in engineering and facilities planning.
Zaleha Ismail is an Associate Professor at the Department of Science and Mathematics Education in the Faculty of Education at Universiti Teknologi Malaysia. She has been teaching undergraduate and postgraduate courses in mathematics education for the past 18 years. Before that, she was involved in teaching undergraduate mathematics at the Faculty of Science, Universiti Teknologi Malaysia. Her special interest is on the applications of computer technology in mathematics education, curriculum design and development, and cognitive psychology. Currently, she is working on researches related to blended learning, computer based learning, teacher education, problem-based learning, and problem solving.

Mohammad Zamry Jamaludin was previously a tutor at the Department of Chemical Engineering, Faculty of Chemical Engineering, Universiti Teknologi Malaysia (UTM), since 2007. He was one of the class tutors for a third-year chemical engineering course, Process Control and Dynamics that employs cooperative problem-based learning (CPBL) as the teaching and learning methodology. He also implemented CPBL lab for Process Control Laboratory, a lab course for the final-year chemical engineering students in UTM. Mohammad Zamry is now on study leave, pursuing his Doctoral degree at McMaster University, Canada in Chemical Engineering.

Tze Ling Jee obtained the Bachelor of Engineering in Electronic and Telecommunication in year 2009 from Universiti Malaysia Sarawak. Currently, she is pursuing her Master’s degree in Electronic and Computer Engineering also in Universiti Malaysia Sarawak. Her research interests include fuzzy systems, failure analysis, and evolutionary computations.

Hamidreza Kashefi was born on September 23, 1972. From 1990 to 1994 he studied at the University of Birjand in Iran, where he received a BSc. degree in Pure Mathematics. In 1999, he received his Master degree in Pure Mathematics from the Iran University of Science and Technology (IUST), Tehran, Iran. He taught in Islamic Azad University of Kermanshah in Iran for eight years. He is now a PhD candidate in Mathematics Education at Universiti Teknologi Malaysia (UTM). His special interest is applications of blended learning and computer based learning to support students’ mathematical thinking at undergraduate level.

Anette Kolmos is a Professor in Engineering Education and PBL and UNESCO Chair in Problem-Based Learning, Aalborg University. She was President of SEFI from 2009 to 2011 (European Society for Engineering Education). During the last 20 years, she has researched the following areas, primarily within engineering education: development and evaluation of project based and problem based curricula, change from traditional to project organised and problem based curricula, development of transferable skills in PBL and project work, and methods of staff development. Dr Kolmos is Associate Editor of the European Journal of Engineering Education.

Siti Mistima Maat, PhD, is a Senior Lecturer at Universiti Kuala Lumpur Malaysia France Institute teaching mathematics and statistics to engineering technology students at undergraduate and graduate students. Her main interest is mathematics education, ethnomathematics, and statistical data analysis using SEM and MINITAB. She has presented her research findings at local and international conferences as well as published more than ten articles in international indexed journals, research report, proceedings, a chapter in a book, and newspaper articles.
Graham Moore is an academic in the Department of Infrastructure Engineering, University of Melbourne. He has taught various aspects of design to agricultural and environmental engineering students since 1985. His educational research interests lie in enhancing the campus experience of learning engineering with web-based tools for information sharing and creative thought. He obtained the Faculty of Engineering Teaching Award in 2006 and the Vice-Chancellors Citation for Outstanding Contributions to Building Graduate Attributes in 2011. He is a Champion with the Australasian Association of Engineering Education. Since 2008 he has been mentoring groups of students who travel to Papua New Guinea to conduct community development work.

Chee Khoon Ng obtained his Bachelor of Civil Engineering (1st class honours) from Universiti Teknologi Malaysia in 1994, and Ph.D. from National University of Singapore in 1998. He had served as a Design Engineer at a consultant firm in Singapore. He is currently a Professor in Civil Engineering at the Faculty of Engineering, Universiti Malaysia Sarawak. His research interests include strengthening of concrete and steel structures, non-destructive concrete testing, high-strength concrete materials and application of AI in structural concrete and concrete materials. He has published more than 70 papers in journals and conference proceedings and edited 2 books. One of his journal papers has received the best paper award in 2002 from the Institution of Engineers, Malaysia. He was also awarded the Matsumae International Foundation Research Fellowship in 2008 for a six-month research attachment at Saitama University, Japan.

Rohani Othman is a faculty member at the Language Academy, UTM. She is currently pursuing her PhD studies in the field of engineering education, and her research area is on the assessment of the communication skills learning outcome in the final year project design course of an engineering program.

Mary Pilotte is currently a Ph.D. student in the School of Engineering Education at Purdue University. She obtained her B.S. degree in Technology from Purdue University, and an MBA from Emory University. She spent over 20 years in industry leading new product development, global engineering teams, manufacturing operations, and M&A activities. She is a member of ASEE, and INES. Pilotte’s research interests include engineering competencies, bridging engineering education, and industrial practice and engineering entrepreneurship.

Juliana Kaya Prpic is an academic in the Engineering Learning Unit at the University of Melbourne. She teaches two multidisciplinary subjects: Leading in a Complex World and Sustainability in Developing Communities, using a project-based learning approach. She has extensive experience in the development of capacity and pedagogy in tertiary engineering and science institutions in Thailand, Sweden, and Germany, in course accreditation and in the use of emerging approaches to teaching and staff development for life-long learning. Her research interests include reflexive practice, transdisciplinarity, intercultural communication, cultural influences on teaching and learning, leadership, complexity, conation, autoethnography, professional identity, and the use of ePortfolio for graduate attribute development.

Roselainy Binti Abdul Rahman is a Senior Lecturer in Mathematics attached to the Department of Science at Universiti Teknologi Malaysia (UTM) Razak School of Engineering and Advanced Technology, UTM International Campus, Kuala Lumpur. Her research interests are in issues relating to teaching
and learning in undergraduate mathematics, namely, on curriculum development, the determination of content, presentation and evaluation of teaching and learning, as well as the integration of technology in the teaching of mathematics. Recent work includes mathematics at the work place and engineering thinking. In particular, she has researched, written, and published in areas such as mathematical thinking, construction of mathematical knowledge, and mathematics education of engineers.

**Norhafizah Ramli** is a Senior Lecturer in the Faculty of Electrical Engineering at Universiti Teknologi Malaysia (UTM). She is currently the 4th Year Laboratory Coordinator who manages a Problem based laboratory course at the Faculty. She is also a member of the IEEE Education Society. Norhafizah has written and co-written a number of papers in her technical research field in Electronics and Instrumentations as well as in Engineering Education. These papers have been published in local and international conference proceedings and journals.

**Zol Bahri Razali** is a Senior Lecturer at the Universiti Malaysia Perlis, Malaysia. He has more than 21 years working experience as a Mechanical Engineering lecturer in polytechnics (12 years) and university (9 years). During those years, he realized that something is missing during practical sessions in engineering laboratory classes. This concern led him to find out the behavior of students in laboratory classes and found that there are elements of Practical Intelligence acquired by performing the laboratory experiments. These elements of practical skill are the outcomes of laboratory classes and have to be measured. In addition to Engineering Education, he is also interested in research in Mechanical Engineering field, especially in design and development of environmental chamber and solid waste sorting system. Currently, he is a Head of Unit of E-Learning, University Malaysia Perlis.

**Riaza Mohd Rias** received her PhD in Multimedia from Universiti Kebangsaan Malaysia (UKM) in 2010 and her Master’s in Computer Science from University Malaya (UM) in 2002. She is currently a Senior Lecturer at the University Technology MARA (UiTM) in Selangor, Malaysia and is attached to the Research Management Institute at UiTM as a Research Fellow. She has been teaching in the field of Computer Sciences and Multimedia for the last 10 years. Her research interest is on multimedia instructional design, 3-D visualization, mobile learning, and multimedia for special learners and computer science education. She is currently a member of IEEE and Malaysian Information Technology Society (MITS).

**Narina Abu Samah** is a Senior Lecturer in the Faculty of Education at the Universiti Teknologi Malaysia (UTM). She teaches educational foundation courses and educational psychology courses for both undergraduate and postgraduate programs. Considering herself to be a qualitative inquirer, her current interest is teaching qualitative research method in education, a passion she developed while conducting her doctoral research. As a practitioner-researcher, Dr. Narina continues to venture into the multi-faceted qualitative designs as means of exploratory research on transformative learning and continuing professional development among teachers and academics, across disciplines and specialisations.

**Rahmat Sanudin** is a faculty member of Faculty of Electrical and Electronics Engineering in Universiti Tun Hussein Onn Malaysia (UTHM) since 2003. Prior to joining UHTM, he was an R&D engineer in JVC Electronics (M) for two years, specializes in printed circuit board design. He received his
About the Contributors

Bachelor’s degree in Electrical and Electronics Engineering from Universiti Tenaga Nasional (UNITEN) in 2001 and Masters’ degree in Electronics Engineering from Universiti Teknologi Malaysia (UTM) in 2006. His research interest is focusing on digital and VLSI design. Currently, he is working towards his PhD degree in the University of Edinburgh, UK in the hardware implementation of signal processing algorithms for future smart antenna application.

Rio Sumarni Shariffudin has twenty years experience in training teachers and professionals in the areas of teacher education, staff development, leadership, and software development. She has received many awards of excellence for her work and has won gold and silver medals for her research in education and multimedia in prestigious competitions at national and international levels.

Karl A. Smith is Cooperative Learning Professor of Engineering Education, School of Engineering Education, at Purdue University West Lafayette. He is also Morse-Alumni Distinguished Teaching Professor and Emeritus Professor of Civil Engineering at the University of Minnesota. He has been actively involved in engineering education research and practice for over thirty years. He is a Fellow of the American Society for Engineering Education and past Chair of the Educational Research and Methods Division. Karl has worked with thousands of faculty all over the world on pedagogies of engagement, especially cooperative learning, problem-based learning, and constructive controversy. He has co-written eight books including How to Model It: Problem Solving for the Computer Age, Active Learning: Cooperation in the College Classroom, 3rd ed., Cooperative Learning: Increasing College Faculty Instructional Productivity; Strategies for Energizing Large Classes: From Small Groups to Learning Communities; and Teamwork and Project Management, 3rd ed.

Ruth A. Streveler is an Associate Professor in the School of Engineering Education at Purdue University. To date, Dr. Streveler has been the Principle Investigator or co-Principle Investigator of ten grants funded by the US National Science Foundation. She has published articles in the Journal of Engineering Education and the International Journal of Engineering Education and has contributed chapters to the Cambridge Handbook of Engineering Education Research. She has presented workshops to over 500 engineering faculty on three continents. Dr. Streveler’s primary research interests are investigating students’ understanding of difficult concepts in engineering science and helping engineering faculty conduct rigorous research in engineering education.

Jamaludin Bin Mohd Taib is a Senior Lecturer at the Faculty of Mechanical Engineering, Universiti Teknologi Malaysia. He has been teaching CAD to postgraduate students for the past 6 years. His areas of research include, Computer Aided Engineering, CAD, and Engineering Design. He has written a book on Computerized Modeling based on the application of CAD software and various articles related to Computer aided Engineering and CAD.

Kai Meng Tay obtained the Bachelor of Engineering in Electrical and Electronic Engineering from University of Hertfordshire, UK in 2002, both MSc in Electrical and Electronic Engineering and PhD. degrees from Universiti Sains Malaysia, Malaysia in 2006, and 2011, respectively. He served as an engineer and researcher in several multinational corporations, i.e., Motorola Technology, Intel Technology
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and Matsushita (Panasonic) Electronic Devices. He is currently an academician at Universiti Malaysia Sarawak. His research interests include fuzzy systems, failure analysis, and evolutionary computations. He has published more than 40 papers in journals, conference proceedings, and books.

**James Trevelyan** chairs the Mechatronics Discipline Group at The University of Western Australia. He helped develop robots for shearing sheep in the 1980s and developed internet accessible robots with his students in the 1990s. He also helped develop improved landmine clearance methods. His most recent work is research on engineering practice that aims to understand how engineering work is actually performed, an aspect of engineering that has not been systematically researched before. He leads the Engineering, Learning, and Practice Research group in the School of Mechanical Engineering at The University of Western Australia.

**Elizabeth Yong** is part of a team conducting engineering communication courses in the Faculty of Engineering, Computer, and Mathematical Sciences at The University of Adelaide. The engineering communication courses develop critical thinking skills and effective oral and written communication skills appropriate to the study of engineering and to engineering professional practice. Elizabeth’s research interest is in curriculum material and methods that can enhance students’ communication skills and their understanding of the impact of engineering solutions. In collaboration with colleagues, Elizabeth has prepared extensive curriculum material for the engineering communication program at The University of Adelaide, which has won an award for ‘Cultural Change in Engineering’ from the Australasian Association of Engineering Education.

**Effandi Zakaria**, PhD, is currently teaching graduate and undergraduate courses and leading research projects at Faculty of Education, Universiti Kebangsaan Malaysia. He has refereed and evaluated articles for several international publications. He has supervised both PhD and Master degree students. His interests have been mathematics teaching and learning: mathematics problem solving, ICT integration in mathematics education, attitudes and beliefs of teachers and students, and he has undertaken research related to all of these areas. He has a total of 104 published articles (45 journals, 4 books, 15 chapters in book, 4 research report, and 36 proceedings).

**Halimah Badioze Zaman** received her PhD degree in Information Science from Loughborough University, United Kingdom, in 1983. She has worked with Universiti Kebangsaan Malaysia (UKM) or National University of Malaysia, since 1983. She is currently a Professor in Multimedia Technology. She is also the coordinator of the ICT niche of the University and Head of the Visual Informatics Research Group. Her research has won various awards both nationally and internationally, in Geneva, Brussels, London, and recently at Seoul, where she won a gold medal for her research invention, and special WIPO (World Intellectual Property Organisation) award. Her research interest is in 3D multimedia, multimedia for special learners, voice recognition for visual impaired learners, augmented reality, virtual reality, and virtual learning environments. She is currently President of the Malaysian Information Technology Society (MITS), and Editor-in Chief of the *Journal of Information Technology and Multimedia* or JITM (a bi-lingual journal in Malay and English).