To All Members, Date: 8 August 2005

CANDIDATES APPROVED TO SIT FOR PROFESSIONAL INTERVIEW

The following candidates have been approved to sit for the Professional Interview for Year 2005.

In accordance with Bylaws 3.7, the undermentioned names are published as having applied for membership of the Institution, subject to passing the year 2005 Professional Interview.

If any Corporate Member of the Institution has any reason as to why any of the candidates is not a fit and proper person for election, he should communicate in writing to the Honorary Secretary. Such communication should be lodged *a month* from the date of publication.

Ir. MC Hee
Honorary Secretary, IEM
The Institution of Engineers, Malaysia

TRANSFER APPLICANTS

Membership No	Name	Qualifications
	Chemical Engineering	
21663	Yeoh Tiong Kim, Kenneth	BE (Hons) (Adelaide) (Chem, 2000)
	Civil Engineering	
19333	Kow Kah Loong	BE (Hons) (Malaya) (Civil, 2000)
22306	Lee Heng Woei	BE (Hons) (UPM) (Civil, 2000)
11484	Lee Sieng Kai	BE (Hons) (Malaya) (Civil, 90)
19450	Leyu Yoon Jin	BE (Hons) (RMIT) (Civil, 98) MEng.Sc (New South Wales) (Civil & Envi, 99)
20869	Ma Lam Fatt	BE (Hons) (Victoria Uni. Of Manchester) (Civil, 98) MSc (Nat. Uni of S'pore) (Civil, 2000)
20905	Sie Teck Sung	BE (Hons) (Auckland) (Civil, 99)
4991	Wan Seng	BE (Hons) (UTM) (Civil, 80)
20895	Wong Hak Wai	BE (Hons) (Warwick) (Civil, 99)
19672	Yee Cheze Kwang, Felix	BE (Hons) (Hertfordshire) (Civil, 98) MSc (Surrey) (Struct, 2000)
	Mechanical Engineering	
16523	Andul Hannan bin Ashaari	BE (Hons) (UKM) (Mech & Materials, 95)
21104	Gan Choon Hock	BE (Hons) (Malaya) (Mech, 90)
21938	Lew San Chong	BE (Hons) (UTM) (Mech- Marine Tech, 97) ME (UTM) (Eng. Mgmt, 98)
12684	Lim Thou Lai	BE (Hons) (UTM) (Mech, 92)
21308	Liu Huei Yang	BE (New South Wales) (Mech, 99)

NEW APPLICANTS

Name	Qualifications
Agricultural Engineering	
Kiu Kwong Chiang	BE (Hons) (UPM) (Bio & Agri, 99)
Civil Engineering	
Abdul Malek bin Abbas	BE (Glasgow) (Civil, 87)
Khalid bin Mohamed	BE (Hons) (UTM) (Civil, 86)
Teo Fang Yenn	BE (Hons) (UKM) (Civil, 2001)
	MSc (UPM) (Water, 2004)
Electrical Engineering	
Nawawi bin Ahmad	BE(Hons) (UTM) (Elect, 84)
Mechanical Engineering	
Dasuki bin Mohd Heak	BSc (Sunderland Polytech) (Mech, 87)
Tiong Tiung Poh	BE (Hons) (Liverpool John Moores) (Mech, 97)

ADMISSION / ELECTION / TRANSFER

The IEM Council, at its 348th meeting on 18 July 2005, approved the admission / election / transfer of a total of 360 members, consisting the following:

DISCIPLINES	MEMBERSHIP GRADES				
Disciplines	Fellow	Member	Graduate	Student	Total
Aeronautical			1		1
Agricultural			1		1
Biochemical			1		1
Biomedical					
CAD/CAM					
Chemical		2	10	46	58
Civil		41	90	13	144
Communication			1		1
Computer Systems				1	1
Computer & Communication					
Electrical		11	20	37	68
Electronic		3	13	8	24
Electromechanical					
Environmental					
Food & Process					
Geotechnical			1		1
Highway					
Industrial					
Information System					
Instrumentation & Control					
Manufacturing		2			2
Materials			1		1
Mechanical	1	17	25	8	51
Mechatronic		1	1		2
Mineral Resources			3		3
Mining					
Polymer					
Petroleum			1		1
Structural					
Telecommunication					
Water Resources					
TOTAL	**1**	**77**	**169**	**113**	**360**

The Members' names and qualifications are detailed below. The Institution congratulates the members on their admission / election / transfer.

Ir. MC Hee
Honorary Secretary,
The Institution of Engineers, Malaysia

TRANSFER TO THE GRADE OF FELLOW

Membership No	Discipline	Name	Qualifications
21663	Mechanical	Kukanesan s/o Sakthiveil	PT.II & IIIA (IMEChE) (Mech, 70) M.Sc Loughborough) - 91

TRANSFER TO THE GRADE OF MEMBER

Name	Membership No	Qualification	Discipline
Chen Chee Chung	20533	BSc (USM)(Civil, 1999)	Civil
Chin Chee Wee	18369	BE (Hons)(UTM)(Civil, 1996)	Civil
Choong Chee Khin	22581	BE (Hons)(Malaya)(Civil, 1998)	Civil
Chung Kian Heng	17346	BE (Hons)(UTM)(Civil, 1998)	Civil
Gan Wah Bin	8973	BSc (Oklahoma State)(Civil, 1985)	Civil
Khu Meng Choon	20688	Pt I & II (IEM/BEM)(Civil, 1998) BSc (Nat. Taiwan)(Civil, 1995),	Civil
Koh Chun Min	15509	BE (Hons)(UTM)(Civil, 1995)	Civil
Kueh Kim Meow	18704	BE (Hons)(UTM)(Civil, 1997)	Civil
Liew Hui Chiat	18652	BSc (Hons)(ITTHO)(Civil, 1997)	Civil
Liew Ken Woon	20861	BE (Hons)(Malaya)(Civil, 2000)	Civil
Lim Foo Hoat	13622	BE (Hons)(UTM)(Civil, 1992), ME (NTU, S'pore)(1995), PhD(NTU, S'pore)(1999)	Civil
Lo Yu Foh	15420	BE (New South Wales)(Civil, 1988) MEng.Sc (NSW) (Struct, 91)	Civil
Loo Sun Hor	18470	BSc (Oklahoma)(Civil, 1996), MSc (UPM)(Highway & Transport, 2001)	Civil
Low Wuu Shin	22671	BE (Hons)(UTM)(Civil, 1999)	Civil
Ng Keng Bing	21594	BE (Hons)(Melbourne)(Civil, 1999)	Civil
Ng Yun Vui	19706	BSc (Oklahoma)(Civil, 1996)	Civil
Ooi Chong Ping	22135	BE (Hons)(UTM)(Civil, 1995)	Civil
Pang Weng Kok	21471	BE (Hons)(Leeds)(Civil, 1997)	Civil
Sew Shuh Tyng	11409	BE (Newcastle)(Civil, 1989)	Civil
Sivaananthan MV Chelladurai	18003	BE (Hons)(Malaya)(Civil, 1999), MSc (UPM)(Highway & TPT, 2002)	Civil
Subramanian a/l Muthiah	3566	B.Tech(Indian Inst. Of. Tech)(Civil, 1978)	Civil
Tan Kian Soon	18938	BE (Hons)(New Castle Upon Tyne)(Civil, 1998)	Civil
Tan Song Keaw	19460	BE (Hons)(UTM)(Civil, 1995)	Civil
Teoh Boon Pin	17685	BE (Hons)(Malaya)(Civil, 1999)	Civil
Teoh Kheng Huat	7752	BSc (Hons)(Birmingham)(Civil, 1981), ME (AIT)(Struct & Const, 1984)	Civil
Thian Hung Yeh	19307	B.Sc (Oklahoma)(Civil, 1997)	Civil
Voon Choo Yen	23624	BE (Hons)(East London)(Civil, 2000)	Civil
Yap Kee Siong	17116	BE (Hons)(Malaya)(Civil, 1997)	Civil
Mat Saad bin Shafie	14712	BE (Hons)(Brighton Poly)(Elect & E'tronic, 1991)	Electrical
Ngu Meng Ho	7000	BE (Hons)(Malaya)(Elect, 1986)	Electrical
Shaharuddin bin Ismail	19688	Adv Dip (ITM)(Elect, 1993)	Electrical
Shamsul Anuar bin Mohd Hassan	12968	B.Sc (Montana)(Elect & E'tronic, 1989), M.E.Sc (New South Wales)(Elect, 2000)	Electrical
Shri Rajini Kanth a/l Kanaesalingam	22483	BE (Hons)(Malaya)(Elect, 2001)	Electrical
Yip Kam Sing	20846	BE (Hons)(Malaya)(Elect, 1999)	Electrical
Lim Juleen	20570	BE (Hons)(Northumbria at Newcastle) (Comm & Electronic, 1999)	Electronic
Lim Suleen	20569	BE (Hons)(Northumbria at Newcastle) (Comm & Electronic, 1999)	Electronic
Ng Kah Hou	18673	BE (Hons)(Birmingham)(Manufacturing, 1997)	Manufacturing
AndrewRagai Henry Rigit	17020	BE (Hons)(City Univ.)(Mech, 1995), ME (UNIMAS)(Mech, 1997), PhD (London) (2004)	Mechanical
Cham Kok Soon	19962	BSc (Missouri)(Mech, 1998)	Mechanical
Chong Chee Shang	21329	BE (Hons)(UPM)(Mech /System, 1999)	Mechanical
Choo Lay Guat	21449	BE (Hons)(UTM)(Mech, 1999)	Mechanical

TRANSFER TO THE GRADE OF MEMBER

Name	Membership No	Qualification	Discipline
Ek Sing Nguong	12221	BE (Hons)(UTM)(Mech, 1988)	Mechanical
Kamal Rusulan bin Mohamed	17136	BE (Hons)(UTM)(Mech, 1994)	Mechanical
Nik Mohd Zuki bin Nik Mohamed	17250	BSc (Widener, USA)(Mech, 1992)	Mechanical
Ong Tiang Siew	20118	BSc (Washington)(Mech, 1995)	Mechanical
Ong Yap Hun, John	20717	BE (Hons)(Portsmouth)(Mech, 1998), MSc (Loughborough)(Eng. Design, 1999)	Mechanical
Wee Chong Eng	22914	BE (Hons)(Monash)(Mech & Comp, 1999)	Mechanical
Yap Chee kwang	19744	BE (Hons)(UTM)(Mech, 2000)	Mechanical
Afrezal bin Tahrin	21323	BE (Hons)(New South Wales)(Mechatronic, 2000)	Mechatronic
Pass Professional Assessment (PAE)			
Zahidy bin Abd Hamid	17330	BE (Hons)(UTM)(Civil, 1995)	Civil
Manoharan Premkumar a/l M. Arunasalam	15667	BE (Hons)(Nottingham Trent)(E&E, 1995)	Electrical

ELECTION TO THE GRADE OF MEMBER

Name	Membership No	Discipline
Mohamad Rosli bin Abu Seman	BSc (Louisiana Tech. U)(Chem, 1994)	Chemical
Zaini bin Ujang	BE (Hons)(UTM)(Chem, 1988) MSc (Newcastle Upon Tyne, 1991) PhD (Newcastle Upon Tyne, 1996)	Chemical
Ang Cheng Hin, Alvin	BE (Hons)(Leeds)(Civil, 1999)	Civil
Chang Sheuan Voon	BE (Hons)(UTM)(Civil, 1995)	Civil
Gan Shiau Hui	BE (Hons)(UTM)(Civil, 1997)	Civil
Hoo Yen How	BE (Hons)(UKM)(Civil & Struct, 1999)	Civil
Khoo Teck Thye	BE (Hons)(Nanyang Tech. U, S'pore)(Civil, 1994)	Civil
Maaz bin Baheram	BSc (Hanyang, Korea)(Civil, 1990)	Civil
Ng Zee Chong	BE (Hons)(UTM)(Civil, 1996) MSc (Imperial)(Concrete Structures, 1997)	Civil
Rohizan binti Mohamad @ Mohamed Asmoni	BE (Hons)(Malaya)(Civil, 1996)	Civil
Sitthambaranatha Gandhi a/l Suppiah	BE (Hons)(East London)(Civil, 1995)	Civil
Teo Kok Jin	BSc (Texas at Austin)(Civil, 1986) MSc (Texas at Austin)(1988)	Civil
Teoh Lah Kok	BE (Hons)(UTM)(Civil, 1988)	Civil
Fong Kok Wah	BE (Hons)(Sheffield)(Elect, 2000)	Electrical
Leong Jen Choong, Ken	BE (Hons)(Monash)(Elect, 1986)	Electrical
Mohd Hazliruddin bin Mohamed @ Mohd Harun	BE (Hons)(ITM)(Elect, 1997)	Electrical
Zahrul Faizi bin Hussien	BE (Hons)(Southampton)(Elect, 1995) Ph.D (Southampton)(2000)	Electrical
Susana binti Kamaruddin	BE (Hons)(Leeds Poly)(Manufacturing Systems, 1991)	Manufacturing
Chiang Kong Yew	B.Sc (Tri-State)(Mech, 1997)	Mechanical
Chung Siew Kong	BSc (Calgary)(Mech, 1985)	Mechanical
Eddy Anak Ahju	BE (Hons)(Sheffield Hallam)(Mech, 1997)	Mechanical
Khoo Keat Huat, Jerry	BE (Hons)(UTM)(Marine Tech, 1996) MSc (NUS)(Bldg Science, 2004)	Mechanical
Teh Boon Chiew	Pt.II (IEM/BEM)(Mech, 1998) B.Sc (Nat. Taiwan Univ.)(Mech, 1992)	Mechanical
Yew Chor Yiaw	BE (Hons)(Thames Poly)(Mech, 1991)	Mechanical
Pass Professional Assessment (PAE)		
Md. Hisham bin Hj. Othman	BE (Hons)(Malaya)(Civil, 1995)	Civil
Mardina binti Abdullah	BE (Ryukyus, Japan)(Electronic, 1991)	Electronic

TRANSFER TO THE GRADE OF GRADUATE

Membership No	Discipline	Name	Qualifications
20610	Chemical	Koay Feng Ling, Gregory	BE (Hons) (UPM) (Chem, 2004)
17206	Civil	Suntharathevan s/o Ramasamy	BE (Hons) (UTM) (CIVIL, 97)

continue from page4

TRANSFER TO THE GRADE OF GRADUATE

Membership No	Discipline	Name	Qualifications
20587	Civil	Tan Wei Min	BE (Hons) (UPM) (Civil, 2004)
22093	Civil	Liong Sin Wey	BE (Hons) (UTM) (Civil, 2003)
22164	Civil	Tay Hwee Zune	BE (Hons) (UNITEN) (Civil, 2004)
23739	Civil	Bong Hin Joo, Charles	BE (Hons) (UNIMAS) (Civil, 2003)
21081	Electronic	Chew Chang Choon	BE (Hons) (UTM) (Elect, 2001)
21097	Electronic	Nivas s/o Ragavan	BE (Hons) (MMU) (E'tronic, 2004)
21447	Electronic	Ho Howe Tian	BE (Hons) (MMU) (E'tronic, 2003)
23408	Electronic	Fam Deng Fong	BE (Hons) (UNITEN) (Elect & E'tronic, 2004)
21198	Mechanical	Nur Fatihah binti Mohd Yusak	BE (Hons) (Malaya) (Mech, 2004)
22559	Mechanical	Alias bin Mohamad	BE (Hons) (UiTM) (Mech, 2005)

ADMISSION TO THE GRADE OF GRADUATE

Discipline	Name	Qualifications
Aeronautical	Abd Rahim bin Abu Talib	BE (Hons) (Salford) (Aeronautical, 98)
Agricultural	Rosnah binti Shamsudin	BE (Hons) (UPM) (Agri, 97)
		M.SC (UPM) (Process & Food, 2001)
Biochemical	Lam Yin Mei, Michelle	BE (Hons) (Wales) (Biochem, 2004)
Chemical	Hong Wai Chin	BE (Hons) (USM) (Chem, 99)
Chemical	Mohammad Fadhil bin Mat Shah	BE (Hons) (UKM) (Chem & Process, 2000)
Chemical	Mohd Shamsul bin Anuar	ME (Hons) (London) (Chem, 2002)
Chemical	Ng Yean Min	BE (Hons) (UPM) (Chem, 2004)
Chemical	Norazian binti Abd Manaf	BE (Hons) (UTM) (Chem-Polymer, 2001)
Chemical	SiewFong Wah	BE (Hons) (UTM) (Chem-Gas, 2003)
Chemical	Tan Chin Yin	BE (Hons) (UTM) (Chem-Gas, 2001)
Chemical	Vong Chwee Chin	BE (Hons) (UPM) (Chem, 2000)
Chemical	Yap Min Yee	BE (Hons) (UTM) (Chem-BioProcess, 2002)
Civil	Adnan bin Zainorabidin	BSc (Hons) (ITTHO) (Civil, 98) ME (UTM) (Civil, 2002)
Civil	Ahmad Hazim bin Abdul Rahim	BE (Hons) (Malaya) (Civil, 2001)
Civil	Ang Lea Sian	BE (Hons) (Queensland) (Civil, 2004)
Civil	Asnizam bin Ahmad	BE (Hons) (UTM) (Civil, 2001)
Civil	Balaratnam S/O Vijayasibgam	ME (Hons) (Bristol) (Civil, 2004)
Civil	Chan Chooi Wen	BE (Hons) (UNITEN) (Civil, 2004)
Civil	Chan Foo Cheong	BE (Hons) (Adelaide) (Civil, 2004)
Civil	Cheah Han Hoe	BE (Hons) (USM) (Civil, 2002)
Civil	Chen See Leong	BE (Hons) (UKM) (Civil & Struct, 99)
Civil	Cheong Choo Hui	BE (Hons) (Liverpool John Moores) (Civil, 99) MPh (Liverpool John Moores) - 2000
Civil	Chia Kah Kit	BE (Hons) (Portsmouth) (Civil, 2001)
Civil	Choo Hew Seng	BE (Hons) (Malaya) (Civil, 2004)
Civil	Choo How Wee	BE (Hons) (UNITEN) (Civil, 2004)
Civil	Choon Teck Kiang	BE (Hons) (UTM) (Civil, 99)
Civil	Dayang Sherrylsusila binti Awang Sharkawi)	BE (Hons) (UKM) (Civil & Struct, 2001
Civil	Diana Anak Ugun	BE (Hons) (UiTM) (Civil, 2003)
Civil	Doris bt Primus	BE (Hons) (UNIMAS) (Civil, 2001)
Civil	Dzulkiflis. De Asildo	BE (Hons) (KUiTTHO) (Civil, 2003)
Civil	Faeizaratul Fazlein binti Isa	BE (Hons) (UTM) (Civil, 2001)
Civil	Guan Shan Mei	BE (Hons) (UNITEN) (Civil, 2004)
Civil	Hafiz Fadillah bin Alhadi	BE (Hons) (UNIMAS) (Civil, 2004)
Civil	Ho Huan Hui	BE (Hons) (City University London) (Civil, 2002)
Civil	Jong Ching Chen	BE (Hons) (UNIMAS) (Civil, 2002)
Civil	Kho Kai Tze	BE (Hons) (Newcastle Upon Tyne) (Civil, 2000) PhD (Newcastle Upon Tyne) - 2004

continue from page5

ADMISSION TO THE GRADE OF GRADUATE

Discipline	Name	Qualifications
Civil	Khoo Chee Seong	BE (Hons) (UPM) (Civil, 2004)
Civil	Koh Cheo Yong	BE (Hons) (Portsmouth) (Civil, 99)
Civil	Koo Hong Kect	BE (Hons) (UTM) (Civil, 2003) ME (UTM) (Civil-Struct, 2004)
Civil	Lai Yau	BE (Hons) (USM) (Civil, 2001)
Civil	Lau Shiok Hung	BE (Hons) (UPM) (Civil, 2002)
Civil	Lee Swee Yong	BE (Hons) (UTM) (Civil, 2003)
Civil	Lee Yee Teck	BE (Hons) (Monash) (Civil & Computing, 2000)
Civil	Leo Kim Seng	PT. II (EC) (Civil, 2004)
Civil	Liew Kean Song	B.SC (New York at Buffalo) (Civil, 2003)
Civil	Liew San Chuin	BE (Hons) (USM) (Civil, 2004)
Civil	Lim Cheng Ping, Valerie	BE (Tasmania) (Civil, 2003)
Civil	Lim Chin Shin	BE (Hons) (Malaya) (Civil, 2004)
Civil	Lim Jit Kheng	BE (Hons) (UTM) (Civil, 99) ME (UTM) (Geotech, 2001)
Civil	Lim Koo Hoong	BE (Hons) (UTM) (Civil, 2003)
Civil	Lim Poi Hong	BE (Hons) (UNIMAS) (Civil, 2002)
Civil	Lim Sin Yee	BE (Hons) (UPM) (Civil, 2002)
Civil	Loo Tze Voon	BSc (Purdue) (Civil, 2004)
Civil	Lue Leong Shen, Henry	BE (Hons) (KUiTTHO) (Civil, 2003) ME (UTM) (Civil-Struct, 2004)
Civil	Mastura binti Azmi	BE (Hons) (UTM) (Civil, 2003)
Civil	Michael Koay	BE (Hons) (UTM) (Civil, 2001) ME (UTM) (Civil & Struct, 2003)
Civil	Mohammad Atiqurrahman bin Khaidzir	BE (Hons) (UNIMAS) (Civil, 2002)
Civil	Mohd Asyraf bin Yari	BE (Hons) (USM) (Civil, 2001)
Civil	Mohd Hardy bin Laidin @ Saidin	BE (Hons) (KUiTTHO) (Civil, 2004)
Civil	Mohd Khaithir bin Mohamad	BE (Hons) (UTM) (Civil, 2001)
Civil	Mohd Naim bin Endut @ Abdul Razak	BE (Hons) (UTM) (Civil, 2001)
Civil	Mohd Najif bin Janif	BE (Hons) (UiTM) (Civil, 2000)
Civil	Mohd Sofiyuddin bin Abdul Samat	BE (Hons) (UTM) (Civil-Const. Mgmt, 2004)
Civil	Moy Chee Ban	BE (Hons) (UNITEN) (Civil, 2004)
Civil	Ng Chiew Teng	BE (Hons) (KUiTTHO) (Civil, 2002)
Civil	Nor Azizah binti Abu Bakar	BE (Hons) (UPM) (Civil, 2002)
Civil	Ong Siaw Peng	BE (Hons) (UNIMAS) (Civil, 2002)
Civil	Ong Tai Boon	BE (Hons) (USM) (Civil 2004)
Civil	Pan Wang Fook	BE (Hons) (Malaya) (Civil, 2001) M.ENG.SC (Malaya) - 2004
Civil	Rahimah binti Muhamad	BE (Hons) (UTM) (Civil, 98) ME (UTM) (Civil & Struct, 2003)
Civil	Raja Muhammad Khalis bin Raja Sahar	BE (Hons) (UKM) (Civil & Struct, 2003)
Civil	Renga Rao s/o Krishnamoorthy	BE (Hons) (USM) (Civil, 2000)
Civil	Samira Albati bt Kamaruddin	BE (Hons) (UTM) (Civil, 98) ME (UTM) (Hydro & WR, 2003)
Civil	Shaiful Nor Aidil bin Mohd Jaya	BE (Hons) (UiTM) (Civil, 2004)
Civil	Shin Chian Cheow	BE (Hons) (Leeds) (Civil & Struct, 2004)
Civil	Si Pik Ling	BE (Hons) (UTM) (Civil-Const. Mgmt, 2003)
Civil	Sia Kie Ding	BE (Hons) (South Australia) (Civil & Water, 2000)
Civil	Sia Wee Ming	BE (Hons) (UTM) (Civil, 2002)
Civil	Siti Rogayah bt Raupu	BE (Hons) (UKM) (Civil & Envi, 2002)
Civil	Sivasankar s/o Ganapathy	BE (Hons) (Malaya) (Civil, 98)
Civil	Tan Boon Chew	BE (Hons) (UTM) (Civil, 2004)
Civil	Tan Han Kiat	BE (Hons) (UTM) (Civil, 2003)
Civil	Tan Kian Guan	BE (Hons) (UMS) (Civil, 2004)
Civil	Tay Boon Teck	BE (Hons) (UNIMAS) (Civil, 2004)
Civil	Teo Yu Hong	BE (Hons) (Melbourne) (Civil, 2001)

continue from page6

ADMISSION TO THE GRADE OF GRADUATE

Discipline	Name	Qualifications
Civil	Voon Siaw Chee	BE (Hons) (UNIMAS) (Civil, 2001)
Civil	Wong Fu Ean	BE (Tasmania) (Civil, 2004)
Civil	Wong Ket Vui	BE (Hons) (UNIMAS) (Civil, 99)
Civil	Woo Weng Kin	BE (Hons) (UTM) (Civil, 2003)
Civil	Yap Ka Kian	BE (Hons) (UNITEN) (Civil, 2004)
Civil	Yeoh Keat Yew	BE (Hons) (UMS) (Civil, 2004)
Civil	Yusmarwati binti Yusof	BE (Hons) (UTM) (Civil, 98)
Communication	Ong Le Sean	BE (Hons) (Hertfordshire) (Elect & E'tronic, 2002) MSc (Wales) (Comm. Sys, 2004)
Electrical	Aznida binti Kamaruddin	BE (Hons) (UPM) (Elect & E'tronic, 2001)
Electrical	Chan Ai Boon	BE (Hons) (Adelaide) (Elect & E'tronic, 2003)
Electrical	Chong Chew Fan	PT 11 (IEM/BEM) (ELECT, 2003) BE (Hons) (UKM) (Elect & E'tronic, 2002)
Electrical	Choong Yih Tee	BE (Hons) (UTM) (Elect, 2002)
Electrical	Fairus bin Hariri	BE (Hons) (UTP) (Elect & E'tronic, 2004)
Electrical	Kamarul Ariffin bin Noordin	BE (Hons) (Malaya) (Elect, 98) M.Eng.Sc (Malaya) - 2001
Electrical	Kao Neng Keong	BE (Hons) (UNITEN) (Elect-Power, 2004)
Electrical	Khoo Kay Yen , Andrew	BE (Hons) (UTM) (ELECT, 2003)
Electrical	Lam Yat Yoong	BE (Hons) (UNITEN) (Elect-Power, 2004)
Electrical	Lee Jeng Kid	BE (Hons) (UTP) (Elect & E'tronic, 2003
Electrical	Leong Siew Neng	BE (Hons) (Monash) (Elect & Comp, 96)
Electrical	Lin Tuck Wah	BE (Hons) (UTM) (Elect, 2002)
Electrical	Miszaina binti Osman	BE (Hons) (Southampton) (Elect, 99) PhD (Southampton) - 2004
Electrical	Nadiah binti Mohamad	BE (Hons) (UTM) (Elect, 2003)
Electrical	Panir Selvan s/o Veeran	PT.11 (IEM/BEM) (Elect, 2003) BSc (Hertfordshire) (E & E, 97)
Electrical	Rajan @ Rajan Ratti s/o Satya Nand	BE (Hons) (UTM-ATMA) (Elect, 2000)
Electrical	Tan Lip Kok	BE (Hons) (Curtin) (Elect, 2000)
Electrical	Thirupathi Rao s/o Narayanamoorthy	BE (Hons) (UTM) (Elect, 2000) ME(UTM) (Elect-Power, 2004)
Electrical	Wan Mohd Hazairin bin Wan Daud	BE (Hons) (UMS) (Elect & E'tronic, 2001)
Electrical	Wong Keam Seng	PT. II (IEM/BEM) (Elect, 2004) BSc (Hons) (Malaya) (Physics, 94)
Electronic	Aminuddin bin Ahmad Kayani	BSc (Michigan) (Elect, 99)
Electronic	Amir Hamzah bin Mohd Amir	DIP (Colmar, France) (Telecom, 98) M.Sc (Limoges, France) - 2001
Electronic	Choi Sait Ying	BE (Hons) (KUiTTHO) (Elect, 2003)
Electronic	Chow Wai Mun	BE (Hons) (UTM) (Elect, 2000)
Electronic	Hwang Boon Hun	BE (Hons) (Hertfordshire) (E & E , 98)
Electronic	Koay Kheng Lin	BE (Hons) (Leeds) (Elect & E'tronic, 98)
Electronic	Lee Weng Keen, Darren	BE (Sydney) (Elect, 2000)
Electronic	Siti Barirah bt Ahmad Anas	BE (Hons) (Strathclyde) (Comp. & E'tronic, 99) MSc (UPM) (Comm. & Network, 2003)
Electronic	Wigneswary d/o K. Sookmaran	BE (Hons) (KUiTTHO) (Elect, 2003)
Geotechnical	Hii Sii Liing	BSc (Nat. Chung Hsing, Taiwan) (Civil, 99) MSc (Newcastle Upon Tyne) (Geotech, 2001)
Materials	Mariatti Jaafar @ Mustapha	BE (Hons) (USM) (Materials, 96)
Mechanical	Abdul Talip bin Zulkarnain	BE (Osaka Inst. of Tech.) (Mech, 99) ME (UNITEN) (Mech, 2005)"
Mechanical	Chen Fun Chien	BE (Hons) (Malaya) (Mech, 2002)
Mechanical	Choo Peng Hin	BE (Hons) (Manchester) (Mech, 2000)
Mechanical	Chow Chin Seang	BE (Hons) (UTM) (Mnfg, 99)
Mechanical	Foong Jia-Fei	ME (Hons) (Sheffield) (Mech, 2004)
Mechanical	How Yong Chang	BE (Hons) (Malaya) (Mech, 2004)
Mechanical	Ken Fariz bin Muhd Abdullah Ichihashi	ME (Hons) (London) (Mech, 2002)

continue from page7

ADMISSION TO THE GRADE OF GRADUATE

Discipline	Name	Qualifications
Mechanical	Lim Terk Yiang	BE (Hons) (UPM) (Mech, 2001)
Mechanical	Mohd Aidy Faizal bin Johari	BE (Hons) (UMS) (Mech, 2004)
Mechanical	Mohd Norhazlee bin Nawawi	BE (Hons) (UTM) (Mech-Automotive, 2003)
Mechanical	Muhammad Fadzli bin Zainel Abdin	BE (Hons) (UNITEN) (Mech, 2002)
Mechanical	Nge Koh Siun	BE (Hons) (Leicester) (Mech, 95)
Mechanical	Ong Beng Kian, Edwin	BE (Hons) (UTM) (Mech, 2003)
Mechanical	Ramzanul Azhim Bin Borhan	BE (Minnesota) (Mech, 2003)
Mechanical	Rosli bin A. Bakar	BE (Hons) (UTM) (Mech, 2004)
Mechanical	Sean Andrew Labansing	BE (Hons) (UiTM) (Mech, 2005)
Mechanical	Shahrul Amin bin Ismail	BE (Hons) (USM) (Mech, 2001)
Mechanical	Shahrul Nizan bin Abdullah	BSc (Clarkson) (Mech, 2000)
Mechanical	Sharinee binti Mohamed Shariff	BE (Hons) (UNITEN) (Mech, 2002)
Mechanical	Suganthan s/o Sumelingam	BE (Hons) (Adelaide) (Mech, 2002)
Mechanical	Tan Ee Sann	BE (Hons) (UNITEN) (Mech, 2003)
Mechanical	Tan Joe Hoe	BE (Hons) (London) (Mech, 2003)
Mechanical	Tan Yong Chin	BE (Hons) (Wales) (Mech, 2003)
Mechatronic	Mohd Arqam bin Moh Arifin	BE (Hons) (IIUM) (Mechatronic, 2004)
Mineral Resources	Faizul bin Che Pa	BE (Hons) (USM) (Mineral Resources, 2002)
Mineral Resources	Muhammad Basri bin Abu Shahrim	BE (Hons) (USM) (Mineral Resources, 2001)
Mineral Resources	Sri Raj Rajeswari d/o Munusamy	BE (Hons) (USM) (Mineral Resources, 2000) MSc (USM) (Mineral Resources, 2005)
Petroleum	Lee Chee Ming	BE (Hons) (UTM) (Petroleum, 2002)

ADMISSION TO THE GRADE OF STUDENT

Discipline	Name	Qualifications
Chemical	Ahmad Faizal bin Insha'ary	1ST YR (UiTM) (Chemical)
Chemical	Anizah binti Jaafar	1ST YR (UiTM) (Chemical)
Chemical	Emy Fazlina binti Ismail	4TH YR (UiTM) (Chemical)
Chemical	Fatin Shakira binti Abdul Manap	1ST YR (UiTM) (Chemical)
Chemical	Furzani binti Razlai	1ST YR (UiTM) (Chemical)
Chemical	Hanan binti Sheikh Ali	1ST YR (UiTM) (Chemical)
Chemical	Haslinda binti Haminol'lah	FINAL YR (UiTM) (Chemical)
Chemical	Mohd Fairouz bin Abu Bakar	1ST YR (UiTM) (Chemical)
Chemical	Mohd Fariza bin Muhammad Wildan Wong	1ST YR (UiTM) (Chemical)
Chemical	Mohd Zakhrollah bin Yahya	1ST YR (UiTM) (Chemical)
Chemical	Mohd Zaki bin Sukor	1ST YR (UiTM) (Chemical)
Chemical	Mohd Zulkifli bin Mohamad Noor	3RD YR (UTM) (Chemical)
Chemical	Muhamad Firdaus bin Subahir	1ST YR (UiTM) (Chemical)
Chemical	Nazreen Begum binti Najibullah Khan	2ND YR (UiTM) (Chemical)
Chemical	Nik Khairul Asraf bin Nik Mohamed	1ST YR (UiTM) (Chemical)
Chemical	Noor Aslinda binti Arifin	1ST YR (UiTM) (Chemical)
Chemical	Nor Azila binti Mat Jusoh	1ST YR (UiTM) (Chemical)
Chemical	Nor Hanis binti Mazlan	1ST YR (UiTM) (Chemical)
Chemical	Norafazah binti Zakariya	1ST YR (UiTM) (Chemical)
Chemical	Nur Aimi Farhana binti Ramli	1ST YR (UiTM) (Chemical)
Chemical	Nur Athirah binti Abdul Aziz	1ST YR (UiTM) (Chemical)
Chemical	Nur Fariha binti Salleh	1ST YR (UiTM) (Chemical)
Chemical	Nur Nasyibah binti Ab. Rahman	1ST YR (UiTM) (Chemical)
Chemical	Nur Wahidah binti Zainuddin	1ST YR (UiTM) (Chemical)
Chemical	Nurul Fadillah binti Mazlan	1ST YR (UiTM) (Chemical)
Chemical	Nurul Hazwani binti Hassan	1ST YR (UiTM) (Chemical)
Chemical	Nurul Zawani binti Mohd Nor	1ST YR (UiTM) (Chemical)
Chemical	Punitha s/o Kannapiran	1ST YR (UTM) (Chemical)

continue from page8

ADMISSION TO THE GRADE OF STUDENT

Discipline	Name	Qualifications
Chemical	Putri Ezatul Azalia binti Mustafa	1ST YR (UiTM) (Chemical)
Chemical	Raihan binti Sinin	FINAL YR (UiTM) (Chemical)
Chemical	Ramona Haliza binti Wahab	FINAL YR (UiTM) (Chemical)
Chemical	Raziyah binti Abd. Rahim	1ST YR (UiTM) (Chemical)
Chemical	Roslydia Akma binti Rusly	1ST YR (UiTM) (Chemical)
Chemical	Roziana binti Razali	1ST YR (UiTM) (Chemical)
Chemical	Sumaiyah binti Samsi	1ST YR (UiTM) (Chemical)
Chemical	Siti Aishah binti Khamis	1ST YR (UiTM) (Chemical)
Chemical	Siti Nurlia binti Ali	1ST YR (UiTM) (Chemical)
Chemical	Siti Rohaya binti Musa	1ST YR (UiTM) (Chemical)
Chemical	Syuhada binti Suliman	1ST YR (UiTM) (Chemical)
Chemical	Wan Kamarul Ariffin bin Wan Zainudin	1ST YR (UiTM) (Chemical)
Chemical	Wan Mohd Faezuddin bin Wan Ismail	1ST YR (UiTM) (Chemical)
Chemical	Wan Rabiantul binti Wan Abdul Hamid	1ST YR(UiTM) (Chemical)
Chemical	Wan Yoke Kin	3RD YR (UTM) (Chemical)
Chemical	Wan Zulkarim bin Wan Nadzri	1ST YR (UiTM) (Chemical)
Chemical	Zaifa Haniza binti Zakaria	1ST YR (UTM) (Chemical)
Chemical	Zanariah binti Zulkefly	1ST YR (UiTM) (Chemical)
Civil	Ahmad Fakruddin Hilmi bin Abdullah	FINAL YR (UiTM) (Civil)
Civil	Azrol Shahwira Izulfian bin Musa	FINAL YR (UiTM) (Civil)
Civil	Farah Lulu binti Abdul Ghani	FINAL YR (UiTM) (Civil)
Civil	Khaireen Azlina binti Rahmat	FINAL YR (UiTM) (Civil)
Civil	Mohd Ikhmil Faevwasz bin Mohd Hanif	FINAL YR (UiTM) (Civil)
Civil	Mohd Khairolden bin Ghani	FINAL YR (UiTM) (Civil)
Civil	Nor Azlina binti Kasim	FINAL YR (UiTM) (Civil)
Civil	Nurjuhanah binti Juhari	FINAL YR (UiTM) (Civil)
Civil	Raja Noraini binti Raja Yusof	FINAL YR (UiTM) (Civil)
Civil	Roshayati binti Abd Aziz	FINAL YR (UiTM) (Civil)
Civil	Siti Hadijah binti Mohd Sahlan	FINAL YR (UiTM) (Civil)
Civil	Yanti Nuryani binti Ma'mum	FINAL YR (UiTM) (Civil)
Civil	Zan Zarina binti Mohd Shehimi	FINAL YR (UiTM) (Civil)
Computer System	Tan Khai Chien	FINAL YR (DEAKIN-KDU) (Computer System)
Electrical	Abu Yamin bin Mokhter	2ND YR (UiTM) (Electrical)
Electrical	Ahmad Hilmi bin Yusof	3RD YR (UiTM) (Electrical)
Electrical	Ahmad Shahrazi bin Md Sidik	FINAL YR (UiTM) (Electrical)
Electrical	Aizat Hilmi bin Zamzam	1ST YR (UiTM) (Electrical)
Electrical	Dzurliza binti Ahmad	1ST YR (UiTM) (Electrical)
Electrical	Izelein Hajar binti Zulkafree	1ST YR (UiTM) (Electrical)
Electrical	Juliana binti Borhan	3RD YR (UiTM) (Electrical)
Electrical	Khairul Adha bin Mohamad Khalil	3RD YR (UiTM) (Electrical)
Electrical	Lily Suryani binti Suaidi	3RD YR (UiTM) (Electrical)
Electrical	Lydia Eznie binti Hamzah	3RD YR (UiTM) (Electrical)
Electrical	Maria binti Awi @ Setapa	3RD YR (UiTM) (Electrical)
Electrical	Mazlina binti Mansor Hassan	3RD YR (UiTM) (Electrical)
Electrical	Md Nor Azam bin Md Yunos	3RD YR (UiTM) (Electrical)
Electrical	Mohd Azlan bin Othman	3RD YR (UiTM) (Electrical)
Electrical	Mohd Azwan bin Ahmad	FINAL YR (UiTM) (Electrical)
Electrical	Mohd Fauzi bin Mahdar	FINAL YR (UiTM) (Electrical)
Electrical	Mohd Hamizi bin Mohd Samsi	FINAL YR (UiTM) (Electrical)
Electrical	Mohd Hassani bin Abbas	2ND YR (UiTM) (Electrical)
Electrical	Mohd Hussaini bin Abbas	2ND YR (UiTM) (Electrical)
Electrical	Mohd Oulul Agazami bin Mohd Suput	3RD YR (UiTM) (Electrical)
Electrical	Mohd Zulfikre bin Mohd Rasib	3RD YR (UiTM) (Electrical)
Electrical	Muhamad Azrul bin Aziz	FINAL YR (UiTM) (Electrical)

continue from page9

ADMISSION TO THE GRADE OF STUDENT

Discipline	Name	Qualifications
Electrical	Muhamad Rizuwan bin Yahir @ Yahaya	FINAL YR (UiTM) (Electrical)
Electrical	Naim Rizal bin Kamaruddin	FINAL YR (UiTM) (Electrical)
Electrical	Nazmy bin Mahadzir	FINAL YR (UiTM) (Electrical)
Electrical	Norhafizan binti Mohd Hanib	3RD YR (UiTM) (Electrical)
Electrical	Norsheha binti Mohd Said	FINAL YR (UiTM) (Electrical)
Electrical	Nurul Hidayah binti Md Sukarno	3RD YR (UiTM) (Electrical)
Electrical	Nurulhuda binti Mohd Sharipp	FINAL YR (UiTM) (Electrical)
Electrical	Rozita binti Milok	4TH YR (UiTM) (Electrical)
Electrical	Shamimi binti Khasim	2ND YR (UiTM) (Electrical)
Electrical	Siti Fatimah binti Ahmad	2MD YR (UiTM) (Electrical)
Electrical	Tan See Hoe, William	4TH YR (UTM) (Electrical)
Electrical	Tan Wei Nee	4TH YR (UTM) (Electrical)
Electrical	Tan Zun Yang	4TH YR (UTM) (Elect - Telecommunication)
Electrical	Tieo Yew Teck	4TH YR (UTM) (Elect - Telecommunication)
Electrical	Wang Wee Sern	4TH YR (UTM) (Elect & E'tronic)
Electronic	Cheah Xiang Ru	FINAL YR (DEAKIN-KDU) (Electronic)
Electronic	Chew Mei Ling, Mary	FINAL YR (DEAKIN-KDU) (Electronic)
Electronic	Khor Yee Wei	FINAL YR (DEAKIN-KDU) (Electronic)
Electronic	Mah Wei Lik	FINAL YR (DEAKIN-KDU) (Electronic)
Electronic	Quah Seng Soon	3RD YR (DEAKIN-KDU) (Electronic)
Electronic	Tan Leong Sem	3RD YR (DEAKIN-KDU) (Electronic)
Electronic	Yeoh Wai Siang	FINAL YR (DEAKIN-KDU) (Electronic)
Electronic	Yew Choong Chuen Hui	FINAL YR (DEAKIN-KDU) (Electronic)
Mechanical	Low Chooi San	4TH YR (KUiTTHO) (Mechanical)
Mechanical	Mohamed Mohideen bin A. Jamal Mohamed	4TH YR (KUiTTHO) (Mechanical)
Mechanical	Sy Ahmad Fairuz bin Yulaimi	3RD YR (KUTKM) (Mech-Thermal Fluids)
Mechanical	Wan Mohd Syahid bin Zolkifli	4TH YR (Mechanical)
Mechanical	Wong Meng Fei	FINAL YR (UTM) (Mech-Material)
Mechanical	Yeo Ya Moi	FINAL YR (UTM) (Mech-Material)
Mechanical	Zairul Hakimy bin Mat Zain	FINAL YR (UTM) (Mechanical)
Mechanical	Zaslin Shuhaina binti Zakaria	1ST YR (UTM) (Mechanical)

REPORT

TECHNICAL VISIT TO KUANTAN SATELLITE EARTH STATION

By: Ir. Hj. Naina Mohd. Khalid

Thirteen participants went on a technical visit to the Kuantan Satellite Earth Station of TELEKOM MALAYSIA on the morning of 21 May 2005. The station is situated on Jalan Beserah, north of Kuantan. We were met on our arrival by Encik Hamidon bin Abdul Manan, the Technical Officer of the station.

He first gave us a briefing on the Satellite Earth Station. The station stands on 46 acres of land. The station, the biggest in Malaysia, was first established in 1970 and obtained ISO 9002 IN 1998. It has access to the following satellites:

Indian Ocean satellite (IOR)
Pacific Ocean satellite(POR) 174E, 176E
APSTAR
MEASAT
PALAPAR
JAP SAT, among others.

Among the services provided are for Telephony, Data, TV leased circuits, TV occasional leased circuits. These are for both International and Domestic services. It also provides VSAT services for leased circuits, Public Switched Telephone Network(PSTN) and remote access Payphones. The station staff also provide maintenance support for VSAT terminals.

SATELLITE COMMUNICATIONS is basically a line of sight microwave communication system using one(1) frequency for Send and one(1) frequency for Receive. The frequencies used in the C Band are from 5425 MHz – 6425 MHz Band for Send and 3700 MHz to 4200 MHz for Receive.

The frequencies in Ka and Ku bands are 10.95-14.95MHz.

After the briefing we went to see the equipment and also outside to see the Antennas(dishes) which ranged from 33 metres to 2.4 metres in diameter.

IEM DIARY

For further enquiries on the events below, please contact IEM Secretariat at 03-7968 4001/2 or visit IEM Homepage at http://www.iem.org.my

Electrical Engineering Technical Division
14 SEPTEMBER 2005
Half Day Seminar on Application of VSAT Technology

23 SEPTEMBER 2005
Talk on Web Portal for Industrial Application

Civil & Structural Engineering Technical Division
17 SEPTEMBER 2005
Visit to the Upgrading of Jalan Duta, Jalan Kuching and other Connecting Roads in Kuala Lumpur Project

Information Technology Special Interest Group (ITSIG)
19 SEPTEMBER 2005
Talk on Business Continuity Plan

Oil, Gas and Mining Technical Division
26 SEPTEMBER 2005
Talk on Trans ASEAN Gas Pipeline

15th Annual General Meeting of Oil, Gas & Mining Technical Division

Geotechnical Engineering Technical Division
28 SEPTEMBER 2005
Talk on Reclamation for the Tanjung Bin Power Plant

Graduate & Student (G&S) Section
7 - 8 OCTOBER 2005
2-Day Course on Understanding Construction Contracts

Water Resources Technical Division
15 OCTOBER 2005
Half-Day Intensive Seminar: How to Design Detention and Sediment Basins Quickly and Easily using Spreadsheets to Meet the Requirements of the Urban Stormwater Management Manual by D. I. D."

CONFERENCE & SEMINAR

13 September 2005
SEMINAR ON POLICY AND FINANCIAL FRAMEWORKS PROMOTING SUSTAINABLE PHOTOVOLTAIC [PV] MARKETS
Venue : KL Hilton, Kuala Lumpur
Organiser : UKM, PTM, PSE
Tel : 03-8921 6299
Fax : 03-8921 6841
E-mail : wardah@visi.eng.ukm.my / zuriati@visi.eng.ukm.my
(Invitation to Register)

20 September 2005
KLRCA SEMINAR ON ARBITRATORS' DUTIES AND WRITING THE AWARDS
Venue : KLRCA
Organiser : KLRCA
Tel : 03-2142 0103 / 2142 0702
Fax : 03-2142 4513
(Invitation to Register)

27 - 28 September 2005
BRIDGE MODEL COMPETITION 2005
Venue : Dewan Sukan Iskandar, UTM
Organiser : Faculty of Civil Engineering, UTM
Tel : 07-553 1967 / 07-553 2158
E-mail : radin@fka.utm.my
Website : http://www.fka.utm.my/bridge
(Invitation to Register)

16 - 19 October 2006
THE THIRD ASIA INTERNATIONAL CONFERENCE ON TRIBOLOGY (ASIATRIB 2006)
Venue : Kanazawa, JAPAN
Organiser : Japanese Society of Tribologists
Fax : +81-76-234-4719
E-mail : asiatrib@kenroku.kanazawa-u.ac.jp
Website : http://web.kanazawa-u.ac.jp/~asiatrib/index.html
(Call for Registration)

24 - 25 November 2005
7TH MMU INTERNATIONAL SYMPOSIUM ON INFORMATION AND COMMUNICATIONS TECHNOLOGIES (M^2USIC 2005)
Venue : PJ Hilton, Petaling Jaya
Organiser : Faculty of Information Science and Technology, Multimedia University
Tel : 06-252 3111 / 03-8312 5259
Fax : 06-231 8840 / 03-8318 3029
E-mail : yflaw@mmu.edu.my / juraya@mmu.edu.my
Website : http://www.mmu.edu.my/m2usic
(Invitation to Register& Call for Paper)

4 - 7 December 2005
INTERNATIONAL CONGRESS ON FLY ASH 2005
Venue : Convention Hall, Hotel Ashok, New Delhi, INDIA
Organiser : Fly Ash Utilisation Programme, Government of India
Tel : +91-11-2696 1318
Fax : +91-11-2696 3770
E-mail : flyash@tifac.org.in
Website : www.flyashindia2005.org.in
(Invitation to Register)

10 - 11 December 2005
THE CIVIL ENGINEERING PROFESSION AND ITS CONTRIBUTION TO NATION BUILDING
Venue : Berjaya Times Square Hotel & Convention Centre, Kuala Lumpur
Organiser : KUiTTHO
Website : http://kuittho.edu.my/nacec
(Invitation to Register)

14 - 15 March 2006
INTERNATIONAL CONFERENCE ON MEMS AND NANOTECHNOLOGY (ICMN 2005): CURRENT CHALLENGES AND FUTURE ISSUES
Venue : Pan Pacific Hotel, Kuala Lumpur
Organiser : IIUM, MiGHT
Tel : 03-2056 4591 / 4589
Fax : 03-2056 4455
E-mail : waleed@iiu.edu.my
Website : http://eng.iiu.edu.my/icmn/
(Call for Paper)

Versatility of the Plate Heat Exchanger in HVAC and Refrigeration Systems

By: Ir. Ong Ching Loon, Organising Chairman

On 31 March 2005, the Building Services Technical Division of IEM and the Malaysia Chapter of ASHRAE jointly organised an evening technical talk on Plate Heat Exchanger for HVAC (Heating, Ventilation and Air-Conditioning) industry with the objective of providing a technological update to 57 members who attended the talk. We extract below the key points of the talk delivered by Ms. Janet Quah, Divisional Manager, Alfa Laval (Malaysia) Sdn Bhd.

INTRODUCTION

There is today a clear trend in the market towards compact heat exchangers. the plate and frame heat exchanger, which falls into the compact category is being favoured more and more over the traditional shell and tube heat exchanger for its various features and benefits. Small footprint, low weight, fully counter-current design, high efficiency, high degree of heat recovery and ability to handle close temperature approach are some of the features which readily translate to lower capital and operating cost.

In this short article, we shall look at some of the background theory governing design of the plate heat exchanger and its applications within the HVAC & R industry.

HEAT TRANSFER THEORY

To design a heat exchanger, firstly, the heat balance between both fluids has to be established.

In cases where there is no change of phase, i.e. no evaporation or condensation of the fluid, the following formula is used to determine the heat load:

$$Q = m_1 \times c_{p1} \times dT_1 = m_2 \times c_{p2} \times dT_2$$

Q = heat load, kW
m = mass flow rate, kg/s
c_p = specific heat, kJ/kg°C
dT = temperature difference, °C
1 and 2 denote primary and secondary sides

The heat load is related to the heat exchanger by the formula below:

$$Q = k \times A \times LMTD$$

k = overall heat transfer coefficient, W/m^2 °C
A = heat transfer area, m^2
LMTD = log mean temperature difference, °C

In this second formula, we can deduce that a high k-value will result in a lower heat transfer area requirement. A small LMTD will have the converse effect and increase the heat transfer area.

There are a number of parameters which can influence the k-value. Fluid properties, flow conditions, heat exchanger geometry, plate material – they all affect the k-value to varying degrees. The first three group of variables can be represented as dimensionless numbers in the mathematical derivation of the k-value. The academic discussion will not be dealt with in this article.

For HVAC cooling duties with close temperature approach (small LMTD) between both fluids, the parameter vital to getting an economical design is a value known as q or NTU (number of transfer units), defined as the ratio of the temperature difference to LMTD.

$$\theta = \frac{dT}{LMTD}$$

Theta (θ) determines the degree of difficulty of a thermal duty.

If we equate the first two formulas above and re-arrange them, we get the following:

$$A = \frac{m \times c_p}{k} \times \theta$$

For a fixed heat load where flow rate is kept constant, we can see that the heat transfer area is proportional to theta-value.

Theta is also related to heat recovery and it can easily be proven that to design high heat recovery duty, the heat transfer area is very sensitive to any slight change in theta value.

As a designer, it is imperative to understand the variables that one can control to optimise the heat exchanger selection for a cost-effective design. In addition, knowledge of commercially available plates and technical limitations of the plate design will result in better specifications for the industry.

APPLICATIONS IN HVAC

The plate heat exchanger (PHE) found its first application in HVAC cooling duty some 45 years ago. In Malaysia, the first large building installation was in the early 1980s where it was used to isolate the cooling tower from the condenser.

Cooling applications are usually of high capacities with close temperature approach resulting in fairly big units. One of the more common HVAC applications in Malaysia today is the use of PHEs in district cooling systems, in the central plant as well as the distribution system. For the latter, the PHE acts as an interface between the distribution piping and the chilled water circuit inside each building. In addition to the need for close temperature approach between both circuits, the PHE design typically works with a larger temperature difference than usual due to system consideration; what would be termed high theta duties, resulting in the need for highly thermal-efficient PHEs. In turn, a highly thermal-efficient design places a high demand on good water quality.

PHEs are also used as pressure breakers for high-rise buildings and in thermal ice storage systems.

In heating applications, where the PHEs tend to be much smaller, they work very efficiently as steam heaters, tap water heaters and even for swimming pool heating. In cold countries, radiator heating using PHEs

is a well-accepted solution in district heating networks.

APPLICATIONS IN REFRIGERATION SYSTEMS

There are various adaptations of the PHE for use as evaporators and condensers in refrigeration systems. Brazed PHE (BPHE) was first developed in the early 1980s for use in small heat pumps. In many DX water chillers today, BPHE has become the standard design for evaporators, valued for its compact, efficient design and low refrigerant charge.

Semi-welded PHE (SWPHE), on the other hand, is normally used for higher capacities and flooded evaporation system. The design provides a solution to the industry's need for chilled water near freezing temperatures, e.g. in the food and beverage industry.

There are many more applications within the industry where the plate concept has a technological edge over other types of heat exchangers. As it is not possible to describe every single application, the speaker Ms. Janet Quah welcomes any query or feedback and can be contacted at janet.quah @alfalaval.com ■

Geotechnical Engineering Technical Division **REPORT**

Report on Talk on Design and Construction of a 20.5m High Nehemiah Wall Near Cameron Highlands, Pahang Darul Makmur

By: Sdr. Jason Khor Lee Chong

The above talk was delivered by Ir. Lee Chee Hai, Managing Director of Nehemiah Reinforced Soil Sdn. Bhd. to 55 members at IEM Hall, Petaling Jaya on 17 September 2004. Ir. Lee began the talk by explaining the challenges faced by engineers in constructing highways crossing the Main range of Peninsular Malaysia. Due to the steepness of the mountainous terrain, the construction of the highway using conventional earthwork approach would involve massive cut and fill which would often trigger slope instability and lead to unfavourable environmental impact. An alternative to the cut and fill solution is the construction of viaducts which is especially difficult, expensive and time consuming because of the steep terrain. The Nehemiah Wall method was proposed and eventually accepted as an optimum solution to the challenge of the Main Range. The talk described the design and construction of a 20.5m high Nehemiah Wall as an alternative to massive cut and fill and viaduct. The project is located along the Second East West Highway (Package 2) which links Pos Selim to Ladang Blue Valley in the Cameron Highlands. Geotechnical investigation involving boreholes, seismic refraction surveys and surface geological mapping were carried out to provide relevant subsoil and geological information needed for global stability analysis. The design was carried out in accordance with the principles outlines in BS 8006 whereby both the internal and external stability were evaluated. The construction of the wall was completed in February 2001 and the performance has been satisfactory. It was found to be cost effective and time saving.

ANNOUNCEMENT

Balai Ikhtisas Malaysia

New Office Bearers 2005/2006 as Elected at the 32nd Annual General Meeting Held on Saturday, 23 July 2005

No	Office	Bearer
1	Chairman	Hjh. Ungku Anna binti Hj. Ungku Mohd
2	Deputy Chairman	Mr. Isacc Sunder Rajan
3	Vice Chairman	Hj. Haron bin Abu Hassan
4	Vice Chairman	Mr. John S.C.Loh
5	Honorary Secretary	Hj. Ahmad Suhaimi bin Ismail
6	Honorary Secretary	Dr Tan Yoke Sing @ Hock Sin
7	Assistant Honorary Secretary	Pn. Nor Atiah binti Hj. Ismail
8	Assistant Honorary Treasurer	Dr Vincent Ng In Hooi
9	Committee Member	Dato' Mohd Sofian Tan Sri Abdul Razak
10	Committee Member	Ir. Choo Kok Beng
11	Committee Member	Datin Dr Jayanthi Krishnan

PROFESSIONAL INTERVIEW ESSAY

Section A – Electronics

By: Sdri. Lim Suleen

Question: ***Describe the requirement of an Emergency Call Centre and the solutions that can be applied using state-of-the-art technology.***

An Emergency Call Centre is a very important service for the protection of human life, preservation of property and maintenance of general community security. Here, I describe my experience in upgrading the Telekom Malaysia 999 Emergency Service Call Centre.

Telekom Malaysia 999 Emergency Service Call Centre project started in 2003 to improve the 999 emergency services in Malaysia. This project was fully funded by the Malaysian Government and Telekom Malaysia (TM) has been appointed as the as the representative to lead the upgrade of the 999 emergency systems at that time. The cost of the whole project was about RM 2 million and took about one year to complete.

The 999 emergency system before the upgrade was segregated around the country, not inter-linked, consist of different and old key-phone systems, have poor or no recording capability, and cannot trace crank calls. This makes the management of the emergency service not efficient and effective.

The biggest problem of the emergency service at that time when the project started was the number of crank calls was very high, where up to 90% of the calls received per day are crank calls. Most crank callers are caller that very frequently dials in to 999 and keep silent, school children calling for fun, and irresponsible adults calling for fun and for non-emergency reasons. In the biggest Alor Star call centre, the number of calls receive per day may reach 10,000 and out of that only 10% are genuine callers. The high number of crank calls to the free-of-charge 999 emergency service causes congestion to genuine callers seeking for urgent help to save lives. There were even several genuine cases where fire has taken lives of innocent victims when help has arrived late due to problems with contacting the emergency service.

The requirements of the system implemented includes:-

- A computer telephony integration whereby all incoming and outgoing calls must be recorded for necessary call management.
- The system must have the ability to monitor, record and report on calls made to the centre.
- The system must have the ability to monitor, record and report on the performance of the Customer Assistance Service Centre (CASC), as well as each individual agent.
- The system must capture caller's number, track down crank calls, record conversation and make fast direct connections of calls to emergency service providers.

The project consists of several phases that were planning and design, implementation of stage server, implementation on first call centre also known as Customer Assistance Service Centre (CASC) site, rollout to all CASC sites, testing and commissioning, training, user acceptance testing, and support and maintenance. A stage server was implemented in Telekom Malaysia headquarters in Kelana Jaya, Selangor where customer database is replicated from TM PANTAS/CASS database, stored and replicated to the seven CASC sites. The customer database contains the customer phone number, name and address. The first implementation site is at Alor Star, followed by another six sites in Kota Bharu, Kuala Terengganu, Seremban, Kluang, Segamat and Kota Kinabalu.

The upgraded system provides the fastest telephone connection to public who require urgent service provided by Emergency Service Providing Agencies, that includes Police, Bomba and Ambulance via CASC. The system enhanced the management of voluminous emergency calls and provided better service to the public by automating and integrating various technologies together, namely computers, call centre application, voice logger and computer telephone.

With this system, the CASC agents are able to identify external callers and the conversations can be recorded for future retrieval and playback. Key components used in this system are:-

- *Ericsson BP250 (PABX/ACD)* and *BusinessLink* application for handling calls.
- *Ericsson Call Centre Supervisor (CCS)* for reporting.
- *FrontRange HEAT Call Centre Application* for front-end call management.
- *CyTrack CyPhone* for computer-telephony integration.
- *Microsoft SQL Database* for the stage server database replication.
- *Dictaphone Freedom Recorder* for voice logging and playback.

When a call comes into the CASC centre, the call directly goes to the *PABX* system and it routes to the *ACD* (Automated Call Distribution) immediately. There is a queue in *ACD*. If there is no agent available, the call will be kept in the *ACD* call queue until an agent is available.

When an agent is available to take the call, the call will be routed to the agent's key phone. While the call is routed to the particular agent, the information is sent to *BusinessLink* simultaneously and it will send to *CyPhone* in the Application Server. *CyPhone* will send the request to *CyPhone client* at the agent's workstation. CyPhone client will retrieve the customer details from database via *HEAT* Application Programming Interface (API). Once the customer details are returned, *CyPhone client* will notify *HEAT* to display the caller's information on the computer screen of the agent taking the call.

The ACD sends the information to *CCS*'s component, *Callprocessor* and *Daemon* for scheduled reporting periodically, and the *Wallboard* component communicates with the wallboard to

display the real-time information on call statistics.

There is a physical connection between key phone and *Freedom Recorder*. When the agent answers the call, the conversation is recorded immediately with the software named *CapturePro* installed on the agent workstation via LAN. *Freedom client* is installed in the Supervisor workstation for retrieving and playback the conversation.

The call centre or CASC at each site are dimensioned according to the volume of calls received. The Erlang formula is used to calculate the call traffic and number of agents required at each call centre. The number of calls per hour handled is calculated based on several variables including number of agents logon and average call duration (average call holding time).

Erlang Formula,

Call Traffic, A = Ch/T

Where A = Call traffic in Erlangs
C = Average number of calls arrivals during the time T (in seconds)
H = Average call holding time (in seconds)

Minimum number of agents required must be equal to the round up figure of the Erlang formula.

Calls Offered per hour is

C = AT/h

There are some problems during peak hours where number of call offered per hour exceeds the call centre capacity. The effect is the call offered exceeding the figures supported would be abandoned, service level of call centre will drop and system will be overloaded affecting the system performance. To effectively reduce the congestion during peak hour, the number of calls offered needs to be reduced to match the number of calls offered.

TM has started activities including advertisement, publicity and cooperates with enforcement representative to combat the crank callers. Information obtained from the system such as reports and voice recording are used to facilitate the activities. Also, manpower during peak hours needs to be increased to handle the calls offered.

With the upgraded 999 system implemented, it is hoped that emergency service in Malaysia will be more effective and efficient. Lastly, I would like to urge the public to be responsible and stop abusing the free-of-charge 999 emergency service provided by our government. ■

ESSAY

PROFESSIONAL INTERVIEW ESSAY

Section B – Electronics

By: Sdri. Lim Suleen

Question: ***The manifestation of professionalism among engineers occurs through their interaction with other segment of the society, which can be viewed essentially as an exercise in group dynamics. In this regard, The Institution of Engineers, Malaysia (IEM) is ideally constituted to serve this purpose. Discuss the various functions that can be provided by IEM in promoting professionalism.***

Engineers play an important role in the society and nation building. There are no doubts that engineers interact with the society in many aspects of their daily lives. Buildings, bridges, roads, cars, computers, and electrical and electronic appliances are example of contribution of engineers. The word 'Engineer' originates from the word Ingenious that means a clever and skilful person. However, other than being clever and skilful, professionalism among engineers are essential to ensure safeguarding of the people, property and environment.

Professionalism is the way of thinking and living with high moral values, and not just having an engineering degree or professional qualification. As IEM is a society established to promote and advance the Science and Profession of Engineers, its function in promoting professionalism is critical.

IEM has been actively organising talks, conference, meetings, exhibitions, and visits to facilitate exchange of information, knowledge and ideas. As majority of IEM Members consist mainly of members from the civil, mechanical, and electrical disciplines, most of the activities organised are catered to these engineering disciplines that are regarded as traditional engineering disciplines. Therefore, engineers from other disciplines such as electronics, telecommunications, environmental, and computer often find that the activities organised by IEM are lacking of relevance to their field. IEM should change to cater for many newer engineering disciplines to encourage probably hundreds and thousand more graduates in these disciplines to join IEM.

In today's fast moving technology world, computers and software has become major tools used by engineers in performing their daily work. In future, engineering and information technology (IT) will one day be merged as one as it is happening in other developed countries. IEM should start looking in the future direction of merging with societies of the computer and software engineering world.

Professionalism is most effectively instilled during the first year in an engineering program. Engineering students should be taught the code of ethics, and safety and health practices of the profession that they are embarking. Engineering students and graduates need to understand their role and contribution to the society apart from their technical know-how. Trainings should be regularly organised for graduate to update their knowledge in professionalism.

Engineers today are being less recognised by society as a profession as compared to profession such as doctors, dentists and lawyers. This may be because doctors, dentists and lawyers deal directly with people or society, while engineers

deal with buildings, materials, machinery and computers. Publicity of engineering profession needs to be increased by IEM to increase the awareness of engineers' contribution to the country and society. Media such as newspapers, television and radio can be used as tools to create this awareness. IEM therefore needs to organised more activities that are interesting and considered news worthy by the media. Activities such as engineering week, competition on engineering works and community services are examples of news worthy activities.

In the job market-place today, non-graduates and non-engineering graduates widely and freely use the title of 'Engineer'. This condition further causes the reputation of engineering profession to suffer. The quality of engineers suffer when anyone can be given an 'Engineer' title specially in private companies. There is certainly lack of enforcement in this aspect. IEM should ensure the use of the 'Engineer' title to those that qualify only just as what is practice by other professions such as doctors, dentists and lawyers. Even the title 'Ir' for professional engineers is not widely known to the society as compared to 'Dr' for doctors. Many IEM members has obtained the 'Ir' title mainly to fulfil the work of approving drawings and designs that are made compulsory in their field. When other engineering disciplines that their work do not required compulsory approval of a professional engineer, most of the time, they are discouraged to obtain it. IEM should encourage all engineering disciplines to be a professional engineer to maintain a high standard of the profession. Of course, benefits of being a professional engineer needs to be addressed as well. If there are no benefits or necessity in being a professional engineer, engineering graduates will not be encouraged to obtain it.

Through the IEM Accreditation Board and Engineering Accreditation Council (EAC), IEM plays an important role in ensuring quality engineering programs in local degree and postgraduate programmes offered by both private and public institutions for higher learning. Through regular evaluation processes, the programmes offered will be improved and its quality maintained. Quality engineering programs produces quality graduates with the necessary skills and qualities that fit the job market needs.

I have discussed here several functions that can be provided by IEM in promoting professionalism. Hope that IEM will continue to promote the professionalism of engineers so that the society will recognise us better. ■

NOTICE

SYABAS' POLICY ON THE USE OF FRP PANEL TANK

Dear Sir,

We make reference to the above matter and our policy statement ref no. (43) in 021/008 Vol. 2 dated 25 April 2005.

After a dialogue with Malaysian Plastics Manufacturers Association (MPMA), we have considered and discussed the appeals/proposals from various parties in the SYABAS' Standard, Material and Products Committee meeting that was held on 22 June 2005.

we are pleased to inform that the committee has revised the policy as follows:-

A. For external use – system to be handed over to SYABAS

The earlier policy decision shall stay and FRP Panel tank shall not be used.

B. For internal use – system to be maintained by the owner/developer

The use of FRP panel tank is permitted, but shall be in compliance with the following requirements;

1. Manufacturers shall manufacture and test FRP Panel water tanks to SS 245: 1995 or MS 1390:1995.
2. Manufacturers shall provide a 15 years warranty for their products and workmanship.
3. Panels shall be coated externally or covered/sheltered as protection against Ultraviolet light.
4. There shall be continuous external vertical bracing from the 1st tier to the 3rd tier (max. 3-tier).
5. The roof panels shall be supported and secured by 50mm diammeter uPVC Class D (Ms 628:1999) pipes at every panel intersection for tanks up to 3 metre height (max. 3-tier).
6. Installation of FRP Panel tank shall be carried out by the tank's manufacturers only or their appointed competent installers and market their tank systems on a supply and install basis. FRP Panel tank manufacturers must show written approval on the installers. Installation by other parties would not be accepted.
7. Repair works shall be undertaken by the respective manufacturers only and shall use original parts and components.
8. Welding of metal parts shall not be allowed for any internal components of the tank.
9. Manufacturers shall have Assembly Instruction Manuals for their products.
10. Owner / Developer shall be fully responsible for the maintenance, repair or its replacement and no recourse to SYABAS for any claim of loss or damages.

The above approval and requirements shall apply to all FRP Panel tanks for internal use.

Thank you.

Yours faithfully,
SYARIKAT BEKALAN AIR SELANGOR SDN BHD
RUSLAN HASSAN
Chief Executive Officer,
Cum Chairman,
Standard, Material and Product Committee