



LAPURAN AKTIVITI-AKTIVITI ASPEN

DISEDIAKAN OLEH PROF. MADYA DR. JAAFAR JANTAN

NAIB Pengerusi Lembaga Penyelaras ASPEN &
NPC (National Point of Contact) ASPEN MALAYSIA

9 OGOS 2008



ASPEN Coordination Board members 2007-2012
Picture taken during the General Assembly, Oct 2007



UNESCO Director General Ko'chiro Matsura & me
Picture taken during his visit to Malaysia in March 2008



Report for the ASPEN activities 2006-2008

Associate Professor Dr. Jaafar Jantan
Vice-Chair ASPEN Coordination Board
NPCR for ASPEN Malaysia



Event	Place & Period	Activities	Sponsor
1. ALOP Asia : Workshop on Active Learning in Optics & Photonics	Miranda House, University College for Women, Univ. of Delhi Nov 5-10, 2006	<ol style="list-style-type: none"> 1. Workshop Director, Minella Alarcon, Programme Officer for Basic Sciences, UNESCO 2. Five day workshop on interactive learning demonstrations on light, optics & photonics & aims to better equip university and high school teachers to teach optics in the introductory physics courses facilitated by David Sokoloff, Alex Mazzolini, & authors of the ALOP training manual. 3. 40 participants from India & Asian region including Malaysia (Prof Khalijah Salleh, & 2 representatives from UPSI). The training manual & the ALOP apparatus were given to UPSI. 	UNESCO Paris ICTP Italy
2. ASPEN General Assembly & The Workshop On Sustaining The Gains In Promoting The Active Learning Method In Teaching Introductory Physics	Ateneo de Manila University, Quezon City, Philippines Oct 22-26, 2007	<ol style="list-style-type: none"> 1. General Assembly were attended by NPCs from Australia, Bangladesh, Malaysia, India, Japan, Pakistan, Phillipines, South Korea, Sri Lanka, Thailand & Vietnam. In addition, Dr. Linda Posadas, Program Specialist for the Basic Sciences, UNESCO, Jakarta Office was also in attendance. 2. ASPEN constitution were amended. 3. Each NPC reported on their country initiatives in physics education 4. New Coordination Board were appointed. Chair-Australia (Alex), Vice-Chair-Malaysia (Dr JJ), Exec Secretary-Thailand (Boachat) 5. Activities for the next 5 years were planned <ol style="list-style-type: none"> a. Establishment of Science Educ. Research Centre (India 	UNESCO Jakarta & SKUM/MOSTI



Event	Place & Period	Activities	Sponsor
		<p>is setting up & Korea already has a centre but needs funding) to focus on ASPEN related PER activities.</p> <ol style="list-style-type: none"> b. Extend ASPEN mandate to include improvement of physics education for upper high school. c. Coordinate at least one local or regional ALW. d. Train at least one resource person on ALW. e. Each country do a survey to identify physics education activities needed by each country. (Dr JJ) f. Hosting & upgrade ASPEN website (Dr JJ) <p>6. I gave a talk on how to use the free simulation PHeT in a physics class</p>	
3. International Conference on Physics Education (ICPE)	Marrakech, Morocco Nov 17-23, 2007	<ol style="list-style-type: none"> 1. I gave two invited talks: <ol style="list-style-type: none"> a. "The Role of ASPEN in Promoting Physics Education in Asia" on behalf of the ASPEN coordination board. b. "Student's Learning Preferences & the Need for Concept Mapping" 2. I was invited to facilitate a workshop entitled "Constructing Concept Maps in Physics Using the IHMC Software" 3. In addition, Prof. Khalijah Salleh (Physics Dept UKM) gave an invited talk and her PhD students facilitated a workshop on her initiative to develop a kit for learning as part of her PhD thesis. Prof Subahan Meerah (Education Faculty UKM) gave another invited talk and he brought 4 of his colleague/students to the conference. 	SKUM/MOSTI
4. Active Learning Workshop	Swinburne University of Technology, Sarawak Campus, Kucing, Sarawak.	I facilitated a section of the Mechanics part of the active learning workshop along with Alvin Baclig from the Phillipines.	SKUM/MOSTI



Event	Place & Period	Activities	Sponsor
	July 8-10, 2008	Most of the workshop sessions are facilitated by David Sokoloff and Alex Mazzolini.	



**MINIT MESYUARAT ASPEN MALAYSIA KALI KE 19
BIL 1/2008**

Tarikh : 7 Julai 2008 (Selasa)
Masa : 3.00 petang
Tempat : Bilik Mesyuarat Utama, Bangunan Suluh Budiman, Universiti Pendidikan Sultan Idris, Tanjong Malim

Kehadiran:

Prof. Madya Dr. Jaafar Jantan	Pengerusi (UiTM)
En. Noor Azman Razalee	Setiausaha (UPSI)
Prof. Madya Dr. Zaidan Abd Wahab	Bendahari (UPM)
Prof. Madya A. Rahman Omar	Ahli (UPSI)
Prof. Madya Dr. Haslan Abu Hassan	Ahli (USM)
Dr. Mohd Nor Mohd Yusof	Ahli (UTM)
Dr. Ahmad Puaad Othman	Ahli (UKM)
Prof. Dr. Abd Aziz Tajuddin	Penasihat (USM)

Tidak hadir dengan kebenaran:

Prof. Dr. Khalijah Mohd. Salleh	Penasihat (UKM)
Prof. Madya Dr. Nasri A. Hamid	Ahli Bersekutu (UNITEN)

1.0 Aluan Pengerusi

- 1.1 Pengerusi memulakan mesyuarat dengan memberi salam dan merakamkan ucapan terima kasih pada yang hadir.
- 1.2 Pengerusi memohon maaf diatas tergendalanya perancangan mesyuarat kerana beberapa kekangan yang diluar kawalan.
- 1.3 Pengerusi memaklumkan bahawa surat perlantikan wakil universiti sebagai ahli ASPEN akan dihantar ke Naib Canselor.
- 1.4 Pengerusi memaklumkan bahawa surat penghargaan dan terima kasih kepada AJK yang telah tamat tempoh keahlian perlu dihantar.
- 1.5 Mesyuarat dimaklumkan bahawa Bengkel “ Active Learning in Optics and Photonics ” Asia telah berlangsung pada 6-11 November 2006 di University College for Women, University of Delhi, New Delhi, India. Bengkel dibiayai oleh UNESCO , SPIE USA , ICTP-OEA Trieste Italy , Association Francaises de l’Optique et Photonique, Essilor. Antara tenaga pakar yang mengendalikan bengkel ialah Prof. David R. Sokoloff dan Dr. Alex Muzzolini. ASPEN Malaysia diwakili oleh Prof. Madya Dr. Jaafar Jantan (Pengerusi ASPEN) , Prof Dr. Khalijah Mohd Salleh (Penasihat ASPEN) En. Sharul Khadri Ayup (UPSI) dan Cik Mazlina Darus (UPSI)



- 1.6 Mesyuarat dimaklumkan bahawa Perhimpunan Agung ASPEN (General Assembly) yang diadakan serentak dengan perhimpunan Agung UNESCO telah berlangsung pada 22-26 October 2007 di Universiti Ateneo De Manila, Quezon City, Filipina. Prof. Madya Dr. Jaafar Jantan selaku NPC (National Point of Contact) Malaysia dan Pengerusi ASPEN Malaysia telah menghadiri persidangan tersebut. Persidangan tersebut juga telah memilih Ahli Lembaga Penyelaras ASPEN untuk tempoh lima tahun (2007-2012) dan Prof. Madya Dr. Jaafar Jantan telah di lantik sebagai Naib Pengerusi. Beliau juga telah di minta untuk menyampaikan ceramah sewaktu berlangsungnya bengkel pembelajaran aktif selepas berakhirnya Perhimpunan Agung ASPEN. Perbelanjaan ditanggung oleh pihak SKUM dan juga oleh UNESCO Jakarta.
- 1.7 Mesyuarat dimaklumkan bahawa Persidangan Pendidikan Fizik Antarabangsa telah berlangsung pada 11-16 November 2007 di Marrakech, Morocco. Antara organisasi yang membiayai persidangan tersebut ialah UNESCO, IUPAP, ICPE, ICTP dan SPIE. Antara penceramah jemputan termasuklah David R. Sokoloff, Ronald K. Thornton, dan Priscilla Laws. Penceramah Jemputan dari Malaysia termasuklah Prof. Dr. Khalijah Mohd Salleh, Prof Madya Dr. Jaafar Jantan dan Prof. Dr. Tamby Subahan Meerah. Selain itu 5 lagi kumpulan daripada Penyelidikan Pendidikan Fizik (Physics Education Research) dari UKM juga menghadiri persidangan tersebut sebagai pembentang kertas kerja atau menjalankan bengkel. Sebahagian dari perbelanjaan untuk Prof. Madya Dr. Jaafar Jantan ditanggung oleh pihak SKUM.
- 1.8 Mesyuarat dimaklumkan bahawa ASPEN perlu memikirkan perancangan program selama 5 tahun. Antara perkara yang perlu diberi perhatian ialah

	Usul	Tindakan
1.8.1	Merapatkan hubungan antara IFM (Institut Fizik Malaysia) dan ASPEN	Pengerusi akan menghubungi pihak IFM
1.8.2	Penambahan bilangan ahli ASPEN	Mesyuarat bersetuju untuk melantik 2 orang wakil daripada universiti yang mempunyai program Fizik dan perlantikan perlu dibuat oleh Naib Canselor universiti berkenaan.
1.8.3	ASPEN Newsletter	Wakil ASPEN USM telah bersetuju untuk menjadi penyunting dan menguruskan tentang hal-hal Newsletter.
1.8.4	Bengkel peringkat Kebangsaan 2009.	Rujuk para 2.1.
1.8.5	Laman Web ASPEN	ASPEN Malaysia telah diberikan mandat oleh ahli lembaga ASPEN dan di berikan tanggungjawab untuk menguruskan



	Usul	Tindakan
		laman web ASPEN dan pada waktu ini laman tersebut telah disediakan dan disempurnakan oleh Prof. Madya Dr. Jaafar Jantan. Alamat url nya ialah http://www2.uitm.edu.my/drjj/DRJJ/ASPEN_WEBSITE/index.htm
1.8.6	Persidangan Antarabangsa ASPEN di Malaysia pada tahun 2012.	Perlu dibincangkan dalam mesyuarat akan datang.
1.8.7	Pemuliharaan pengetahuan dan kemahiran saintifik	Perlu dibincangkan dalam mesyuarat akan datang.

2.0 Perkara-perkara Berbangkit

2.1 Persidangan ASPEN Kebangsaan 2007

Mesyuarat dimaklumkan bahawa Persidangan Kebangsaan ASPEN 2007 tidak dapat diadakan kerana terdapat dua persidangan ASPEN seperti yang dilaporkan dalam para 1.7 dan 1.8. Namun demikian mesyuarat bersetuju untuk mengadakan Bengkel 'Kaedah Pengajaran Pembelajaran dan Pentaksiran dalam Pelaksanaan Pendidikan Berasaskan Hasil Pembelajaran (Outcome Based Education) di Peringkat Universiti' pada bulan Disember 2009 di UPSI

2.2 Persidangan ASPEN Antarabangsa 2008

Mesyuarat dimaklumkan bahawa Persidangan Antarabangsa ASPEN 2008 pada penghujung Disember 2008 tidak diadakan kerana terdapat dua persidangan ASPEN seperti yang dilaporkan dalam para 1.7 dan 1.8. Mesyuarat bersetuju agar persidangan ini diadakan pada tahun 2012.

2.3 Program Peningkatan Kesedaran Awam

Mesyuarat bersetuju supaya Program Peningkatan Kesedaran Awam mengenai Fenomena Fizik dalam kehidupan seharian dikendalikan dengan kerjasama Akademi Sains Malaysia

3.0 Laporan Kewangan

Jumlah Akaun Simpanan dalam bentuk simpanan tetap di Bank Rakyat dari 1/7/07 hingga 31/12/07 ialah sebanyak RM 11,119.38. Baki akaun dari Akaun Semasa Maybank dari 31/12/2005 hingga 31/10/2007 ialah RM 9,341.62.

Butiran Transaksi akaun di Maybank adalah seperti berikut:

Tarikh	Tarikh	Butir	Jumlah	Baki
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Masuk	Keluar	Urusniaga	Urusniaga	
9/11/2007		Sumbangan SKUM	RM 5,500.00	RM 14,841.62
	22/11/2007		RM 5,500.00	RM 9,341.62
10/09/2007		Sumbangan SKUM	RM 5740.00	
	18/09/2007		RM 5740.00	RM 9,341.62
11/12/2007		Sumbangan SKUM	RM 25,500.00	RM 34,841.62
	28/02/2008		RM1,020.34	RM 33,821.28
	28/02/2008		RM 960.00	RM 32,861.28
	28/02/2008		RM 840.00	RM 32,021.28
	3/03/2008		RM 1300.00	RM 30,721.28
	4/03/2008		RM 12,028.00	RM 18,693.28
	10/03/2008		RM 860.00	RM 17,833.28
23/06/2008			RM 2045.00	RM 19,878.28
	30/06/2008		RM 2045.00	RM 17,833.28

Baki Akaun Semasa Maybank sehingga 30/06/2008 ialah RM 17,833.28

4.0 Hal-hal lain

Tiada.

5.0 Penutup

Mesyuarat ditangguhkan pada jam 4.00 petang dengan ucapan terima kasih.



5TH ASPEN GENERAL ASSEMBLY COUNTRY REPORT
NATIONAL POINT OF CONTACT REPRESENTATIVE FOR MALAYSIA
ATENEO DE MANILA UNIVERSITY, QUEZON CITY, PHILIPPINES
October 22nd -23rd, 2007

ASSOCIATE PROFESSOR DR JAAFAR JANTAN a.k.a DR. JJ
FACULTY OF APPLIED SCIENCES
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR, MALAYSIA

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Introduction

The nation building of Malaysia has called for a 60-40 proportion of science to other disciplines in terms of the number of student intake at all public universities. Yet, the proportion has not been realized. In fact, the proportion of students who graduated with science or science-related disciplines is far below the targeted proportion. Part of the reason has been the problems of science learning and teaching which either does not attract students to major in science or worst yet, to hold-on doing the sciences until they graduate. In the words of Professor Carl Weiman, the 2001 Nobel Prize winner in physics in his science education talk at the University of British Columbia on Nov 21st, 2005, “the purpose of science education at the university level is to transform novices to think about and using science like a scientist in solving problem”. Weiman stresses that science education is not just to produce scientists but rather to meet the demand of the technology-based workforce and to prepare citizens in making wise decisions concerning a range of issues including health, environment and quality of life.

ASPEN Activities

Science graduates from public universities in Malaysia has seen a steady decline in terms of their knowledge in science particularly their conceptual understanding, their scientific skills



and reasoning abilities and their beliefs about science. In fact, some are having difficulties to outline, distinguish and explain the scientific method of the science projects that they have done while at the university. The Ministry of Higher Learning in Malaysia had realized this handicap and had recently enforced the implementation of Outcome-Based-Education (OBE) for all public and private universities. Hence all universities are now busy preparing the OBE curriculum which also includes the delivery and assessment methods of the curriculum. In other words, at the national level, the effort of physics education specifically and the science education in general, is undergoing a major revamp in tandem with the data obtained and research done into effective teaching and learning of physics and sciences. ASPEN Malaysia, is very committed to help the nation achieved its goal in producing the human capital with the scientific worth and is supporting the government's effort in implementing the OBE. In fact, most of the activities that ASPEN Malaysia along with the ASPEN activities for the past five years has been focused on and geared towards producing educators and students who have achieved the goals of thinking about and using science in solving problems. Table 1 shows the activities of ASPEN Malaysia for the past six years.

TABLE 1: ASPEN activities from late 2001 until end of 2007

	Activity	Date
1.	ASPEN Malaysia organizes its committee meeting <u>twice a year</u> (except for 2006 and 2007 since an NPCR has not been officially appointed).	Twice a year
2.	NPCR attends the Malaysian UNESCO National Commission Science Permanent Sub-committee Workshop at Langkawi City Bayview.	July 31 st , 2001
3.	Seminar and Workshop 2002 (Theme: Applying Basic Physics) held at Kolej Yayasan Pelajaran MARA, Kuantan, Pahang. Workshops on MBL, Web-based learning, simulations, and assessment strategies were held for physics educators at both high school, college and university level.	May 28 th - May 30 th , 2002
4.	NPCR attended the 4 th ASPEN General Assembly and	Nov 9 th – Dec 5 th , 2002



	Activity	Date
	Active Learning Workshop (ALOP) at the University of Peradeniya, Kandy, Sri Lanka.	
5.	Workshop on Physlets: Teaching Physics With Interactive Curricular Materials held at UPSI and led by a visiting Professor from USM. Participants were ASPEN members and the physics faculty of UPSI.	Feb 21 st – Feb 22 nd , 2003
6.	NPCR ASPEN Malaysia in the capacity as the ASPEN Vice-President visited The Royal University of Cambodia Phnom Penh (sponsored by UNESCO).	April 23 rd – April 25 th , 2003
7.	Seminar and Workshop (Theme: Operationalizing Creativity and Meaningful Learning of Physics and Engineering) held at Port Dickson, Malaysia. (Refer to Appendix). About 100 participants from high schools teachers and a few from preparatory colleges and universities attended the workshop.	Dec 12 th – Dec 15 th , 2004
8.	NPCR attended the fourth UNESCO Workshop on Active Learning in Optics and Photonics (ALOP ASIA 2006) at Miranda House, the prestigious college for women at the University of Delhi (sponsored by UNESCO)	Nov 6 th – 11 th , 2006

ASPEN Malaysia will continue to have activities every year at the national level and will aim to host the 6th ASPEN General Assembly, Conference and Workshop in 2012. Our activities shall be aligned with the aspiration of Malaysia, according to the guidelines produced by MOSTI and in tandem with initiatives and programs led by ASPEN.



ASPEN Membership

ASPEN Malaysia is now one of the science committees under the International Division of the Ministry of Science, Technology and Innovation Malaysia and is affiliated to the UNESCO Malaysia National Commission (SKUM) which is under the Ministry of Education Malaysia. The permanent members of ASPEN Malaysia are represented by the public universities which are Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Teknologi MARA (UiTM), Universiti Sains Malaysia (USM), Universiti Teknologi Malaysia (UTM) and Universiti Pendidikan Sultan Idris (UPSI - which serves as the secretariat for ASPEN Malaysia). Each university is represented by a physics faculty from the respective physics-related departments and each member has the power to vote for and is eligible to be voted as office bearers. In addition, there is a representative from SKUM and a representative from Institute of Physics Malaysia (IFM). A faculty member from USM will be appointed to replace Prof Abd. Aziz Tajuddin who now serves as an advisor. The name of the current ASPEN Malaysia members are shown in Table 1.

TABLE 2: Name and affiliation of ASPEN Malaysia permanent members

Position	Name	Affiliation
Chair & NPCR:	Assoc. Prof. Dr. Jaafar Jantan	UiTM
Secretary:	Norazman Razalee	UPSI
Treasurer:	Assoc. Prof. Dr. Zaidan Abd. Wahab	UPM
Advisor:	Prof. Dr. Khalijah Mohd Salleh	UKM
Advisor:	Prof. Dr. Abd. Aziz Tajuddin	USM
Members:	Dr. Ahmad Puaad Othman	UKM
	Associate Prof. Yusoff Abdul Wahab	UTM
	Associate Prof. Ithnin Abdul	UM
	Representative	SKUM
	Representative	IFM

The National Point of Contact Representative, Assoc. Prof. Dr. Jaafar Jantan, received his appointment from MOSTI in August 2007 replacing Prof. Dr. Abd. Aziz Tajuddin whose



term ended in April 2005 but continued to be the acting NPCR until August 2007. At this point, the National Point of Contact must be the International Division (Multilateral Cooperation Unit), Ministry of Science Technology and Innovation, since the Division acts as the national focal point for science, technology and environmental activities which comes under the purview of international multilateral bodies.

In addition to the permanent members, ASPEN Malaysia has agreed to appoint associate members from as many public and private universities in the country which are offering undergraduate and graduate physics programs. At present, Universiti Tenaga Malaysia is the only associate member representing the private university. These associate members will not be eligible to vote or be eligible to become office bearers. This suggestion has not been implemented yet but we are drafting the letters to be sent to the provost or vice chancellors and asking them to nominate a faculty member from their respective universities to become ASPEN Malaysia associate members.

Future Undertakings

Table 3: ASPEN Malaysia intends to undertake the following activities in the next five years:

	Activity	Target Date
1.	Closing the gap between ASPEN & IFM	Middle of 2008
2.	Increasing number of ASPEN Malaysia associate members.	Middle of 2008
3.	Creating an online ASPENLett, an ASPEN newsletter which reports on ASPEN activities and include a few brief research papers.	End of 2008
4.	National Conference & Workshop focusing delivery process and assessment strategies in outcome-based-education.	Middle of 2009
5.	National Conference & Workshop focusing on sustainability of scientific knowledge and skills.	Middle of 2011
6.	6 th ASPEN General Assembly and ASPEN International Conference and Workshop	Middle of 2012



ASIAN PHYSICS EDUCATION NETWORK
A Regional Cooperative Program Supported by UNESCO

Chair of ASPEN Coordination Board and National Point of Contact (Australia):
Dr. Alex Mazzolini



SWINBURNE
UNIVERSITY OF
TECHNOLOGY

Active Learning Workshop in Science and Engineering
8-10 July 2008
Swinburne University of Technology
Kuching Campus, Sarawak, Malaysia

Introduction

As part of Swinburne University's commitment to renewal of its education programs in Science and Engineering, it has funded two projects from its Australian Government LTPF (Learning and Teaching Performance Fund). These two projects entitled "Developing an Active Learning Approach for Technical Disciplines (Phase 1 and Phase 2) aim to introduce Active Learning (AL) into several of the first year level subjects in Science and Engineering taught at Swinburne University. Part of these LTPF projects involves running several Active Learning Workshops (ALWs) for Swinburne staff and other interested academics.

One ALW has already been held at Swinburne University's Hawthorn Campus in Melbourne (January 2007) and a second has been organised at the University's Kuching Campus in Sarawak (July 2008). The Swinburne Kuching ALW will cover the topics of electronic & electric circuits, light & optics, heat & temperature, and linear mechanics. This 3-day workshop is limited to 30 places, and will be conducted in English.

The Swinburne Kuching ALW will include participants from academics from the Swinburne Kuching Campus but will be expanded to include other interested academics from Malaysia, and to ASPEN representative from the Asian region.

The costs associated with the Swinburne Kuching ALW are covered by the LTPF grant and by the local Sarawak organisers.

A UNESCO (Jakarta Office) grant of \$4000USD will cover travel expenses for 5 or 6 ASPEN participants to the Swinburne Kuching ALW, and one of these ASPEN participants will assist as a resource person and facilitator in the workshop.

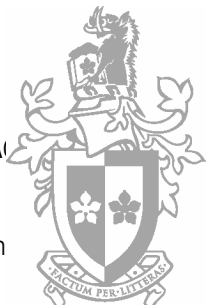
The ASPEN participants, where possible, will come from the following countries: Indonesia, Cambodia, Malaysia, Brunei, Nepal or Thailand (depending upon availability), or other ASPEN countries as determined by ASPEN and UNESCO.

Course Outline

**Outline (Provisional) of Active Learning Workshop in
Science and Engineering: 8-10 July 2008**

Swinburne University of Technology
(Hawthorn Campus) 1 Alfred Street, Hawthorn, Victoria, Australia

Dr Alex Mazzolini, Leader, Imaging and Applied Optics Group, Centre for Atom Optics and Ultrafast Spectroscopy (CAO), Academic Leader for Physical Sciences, Faculty of Engineering and Industrial Sciences, Swinburne University of Technology, Mail Stop # H38, PO Box 214, Hawthorn, Victoria, 3122, Australia
phone (+613) 9214 8866, fax (+613) 9214 8264, email amazolini@swin.edu.au, web page www.swin.edu.au/bsee/m



**Monday 7th July**

5.00 PM Registration and Welcome Dinner

Tuesday 8th July

9:00 AM Introduction to Active Learning and Education Research results
 10:00 AM Electric circuit and optics conceptual evaluation test
 10:30 AM Break 20 min (plus 10 min change over and catch up)
 11:00 AM Overview of student models of electric circuits
 11:15 AM Hands-on work with RTP* Electric Circuits—Labs 1-4 (Simple DC Circuits)
 1:00 PM Lunch 50 min (plus 10 min change over and catch up)
 2:00 PM Hands-on with RTP Electric Circuits—Labs 1-4 and Lab 5 (RC Circuits)
 3:30 PM Break 20 min (plus 10 min change over and catch up)
 4:00 PM Hands-on with RTP Electric Circuits—Lab 7 (AC Circuits) and discussion of active learning and the day's workshop activities
 5:30 PM Adjourn

Wednesday 9th July

9:00 AM Overview of student models of light and optics
 9:15 AM Hands-on with RTP Light and Optics—Labs 1-3 (Geometrical Optics)
 10:30 AM Break 20 min (plus 10 min change over and catch up)
 11:00 AM Hands-on with RTP Light and Optics—Lab 5 (Polarized Light)
 12:00 PM Lunch 50 min (plus 10 min change over and catch up)
 1:00 PM Hands-on with Wavelength Division Multiplexing (WDM) lab
 3:00 PM Break 20 min (plus 10 min change over and catch up)
 3:30 PM Introduction to Interactive Lecture Demonstrations
 4:45 PM Discussion of the day's work
 5:30 PM Adjourn

Thursday 10th July

9:00 AM ILD example (Linear Mechanics)
 10:30 AM Break 20 min (plus 10 min change over and catch up)
 11:00 AM ILD example (Operational Amplifier)
 12:00 PM Lunch 50 min (plus 10 min change over and catch up)
 1:00 PM Overview of student models of Heat & Temperature
 1.15 PM Hands-on work with RTP Heat and Temperature—Labs 1, 2 and 3
 3.00 PM Break 20 min (plus 10 min change over and catch up)
 3.30 PM ILD example (Heat Engine)
 4.45 PM Discussion of the day's work and broader active learning issues.
 5:30 PM Adjourn

* "Real Time Physics Active Learning Laboratories", Sokoloff, Thornton & Laws, published by Wiley

Workshop Facilitators

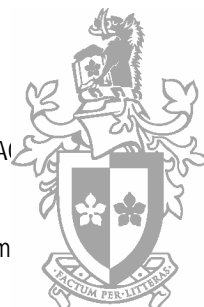
1. Prof David Sokoloff (University of Oregon, USA)
2. Dr Alex Mazzolini, ASPEN Coordination Board Chair (Swinburne University, Australia)

ASPEN resource person

1. Assoc. Prof. Dr. Jaafar Jantan, ASPEN Coordination Board Vice Chair (Univ. Teknologi Mara, Shah Alam, MALAYSIA)
2. Alvin Baclig (Univ. Of Phillipines)

Swinburne University of Technology
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Dr Alex Mazzolini. Leader, Imaging and Applied Optics Group, Centre for Atom Optics and Ultrafast Spectroscopy (CAI)
 Academic Leader for Physical Sciences, Faculty of Engineering and Industrial Sciences,
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Active Learning Workshop in Science & Engineering

8-10 July 2008

Swinburne University of Technology, Sarawak Campus

	Name	Position	Institution	email address
1	Dr Alex Mazzolini	ASPEN Chair, Area Coordinator Phys Sci	Faculty of Engineering and Industrial Sciences, Swinburne University, Melbourne, Australia	amazolini@swin.edu.au
2	Prof David Sokoloff	Prof of Physics	Physics Department, University of Oregon, USA	
3	Dr. Jaafar Jantan (JJ)	ASPEN Vice Chair, Assoc. Prof of Phys.	Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam City, Malaysia	drjjlanita@hotmail.com
4	Dr. Deepak Prasad Subedi	ASPEN NPC ,Ass Prof (Physics), Head of Dept	Department of Natural Sciences, School of Science, Kathmandu University, P.O. Box 6250, Dhulikhel, Kavre, NEPAL,	deepaksubedi2001@yahoo.com
5	Mr Ing Heng	Deputy Dean, Former Head of Physics	Faculty Science, Royal University of Phnom Penh. Cambodia	<ingheng1951@yahoo.com>
6	Mr Alvin C Baclig	Lecturer	Physics Department, University of Philippines, Manila Philippines	albinito@gmail.com
7	Dr Triyanta	Associate Professor	Faculty Maths & Natural Science, Institut Teknologi Bandung, Jl. Ganesa 10 Bandung, Indonesia, 40132	triyanta@fi.itb.ac.id
8	Mr. Kreetha Kaewkhong	lecturer/PhD student, Phys Educ Network Thailand	Institute for innovation and Development of Learning Process, Mahidol University, Rama 6 Road, Bangkok, 10400, Thailand	kwkhng@hotmail.com
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