

The

Fakulti Kejuruteraan Pembuatan

# LEAN



edisi 3/2009 : Februari



# DECON 2008

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EDISI

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## Aluan Dekan

Assalamualaikum dan Salam Sejahtera,

Sepuluh kedua tahun 2008 telah menyaksikan pelbagai aktiviti yang telah dijalankan dalam memenuhi misi fakulti untuk melaksanakan pengajaran dan pembelajaran kejuruteraan pembuatan yang berkualiti, serta penyelidikan dan perundingan yang memenuhi keperluan semasa.

Fakulti telah menyambut beberapa orang staf yang telah tamat cuti belajar dan mula bertugas semula. Pada masa yang sama beberapa orang staf telah mula mengikuti program cuti belajar, sama ada untuk ijazah sarjana mahupun doktor falsafah. Untuk mengukuhkan lagi tenaga pengajar fakulti, dua orang staf kontrak (luar negara) telah melaporan diri. Semoga dengan pertambahan staf akademik ini akan meningkatkan lagi pencapaian fakulti dalam kualiti pengajaran, penyelidikan dan penerbitan.

Bulan Julai adalah amat bermakna kepada kursus Sarjana Muda Kejuruteraan Pembuatan (Pengurusan Pembuatan) dan Sarjana Muda Kejuruteraan Pembuatan (Bahan Kejuruteraan). Ini kerana kedua-dua kursus telah dilawati oleh Majlis Akreditasi Kejuruteraan (EAC) untuk tujuan pengiktirafan. Staf Jabatan Pengurusan Pembuatan dan Jabatan Bahan Kejuruteraan telah bertungkus-lumus dan memberikan sumbangan terbaik untuk memastikan proses pengiktirafan berjalan dengan lancar.

Pada permulaan sesi 2008/09, fakulti telah menerima seramai 391 orang pelajar baru dimana 236 daripadanya memasuki tahun satu dan selebihnya pelajar tahun dua. Pada Majlis Konvokesyen ke-4 pula, seramai 316 pelajar telah bergraduat. Seorang graduan dari Kursus Bahan Kejuruteraan, Cik Chang Siang Yee telah berjaya mendapat Anugerah DiRaja bagi pencapaian cemerlang beliau sepanjang pengajian di UTeM. Tahniah diucapkan.

Aktiviti kemuncak pada tahun 2008 ialah penganjuran Persidangan Kebangsaan Rekabentuk dan Kejuruteraan Serentak (DECON 2008) pada 28-29 Oktober 2008. Persidangan yang telah dirasmikan oleh Timbalan Menteri Pengajian Tinggi Malaysia itu telah berjaya membentangkan 84 kertas kerja dalam bidang-bidang berkaitan.

Semua aktiviti dan program yang telah dijalankan sepanjang tahun, dan juga kejayaan cemerlang yang dikecapi oleh fakulti adalah hasil usaha dan kerjasama semua staf, sama ada akademik, teknikal mahupun staf sokongan. Saya ingin mengucapkan berbanyak terima kasih dan setinggi-tinggi penghargaan di atas sumbangan dan usaha yang telah diberikan. Saya yakin dengan sumbangan positif dan kerjasama dari semua pihak, Fakulti Kejuruteraan Pembuatan akan lebih cemerlang dimasa hadapan.

Selamat berjaya dan Terima kasih.

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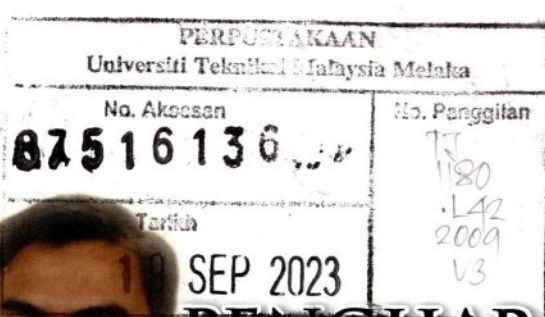
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# PENGHARGAAN

Seluruh warga Fakulti ingin merakamkan ucapan penghargaan dan rasa terima kasih yang tak terhingga kepada mantan Dekan iaitu Y.Bhg. Prof Dr. Mohd Razali bin Muhamad yang telah menerajui Fakulti selama lebih empat (4) tahun mulai 1 November 2004 hingga 31 Januari 2009. Jasa dan sumbangan beliau adalah tidak ternilai kepada pembangunan dan kemajuan FKP. Semoga beliau akan terus berjaya sebagai Dekan Pusat Pengajian Siswazah.

# TAHNIAH

Mulai 1 Februari 2009, FKP mengalu-alukan pelantikan Y.Bhg. Dr. Mohd Rizal bin Salleh sebagai Dekan menggantikan Y.Bhg. Prof. Dr. Mohd Razali bin Muhamad. Diharap seluruh warga FKP akan bersama-sama memberi kerjasama dan komitmen yang tinggi dalam membantu beliau memajukan Fakulti.

# DECON 2008

Liew Pay Jun

The National Conference on Design and Concurrent Engineering (DECON) 2008, following the success of DECON 2006, has been organized by Faculty of Manufacturing Engineering (FKP – UTeM) with the support of Institution of Engineers Malaysia (IEM) and Majlis Rekabentuk Malaysia (MRM). This conference was held on 28 and 29 October 2008 in Avillion Legacy Hotel, Melaka. With the theme "Design Excellence for Manufacturing sustainability", it provides a good platform for researchers, academicians, engineer and industrial practitioners to share and disseminate latest technologies, scientific, engineering achievements and findings in the general field of manufacturing engineering, specifically in the design areas. Besides that, it also gives information and instills awareness on the opportunities of collaboration among local academic institutions and industrial partnerships in the activities of co-operation, research and consultancy.

In this conference, there were 84 papers presented. The participants were mostly from local Malaysia, but there were also some participants from Myanmar and Japan. The topics discussed covered the subject of Material Selection in Design, Product and Process Innovation, Concurrent Engineering, Design of Control System, Design for Environment and Sustainability, Analysis Techniques in Design, Product and Industrial Design, Design for Manufacturing and Assembly, Product Innovation, Reverse Engineering, Rapid Prototyping, Ergonomic Design, Artificial Intelligent and Design Automation.

DECON 2008 was officiated by Yg. Berhormat Datuk Ir. Hj. Idris Bin Harun, Timbalan Menteri, Kementerian Pengajian Tinggi. During the closing ceremony, Yg. Berhormat Datuk Hj. Mohamad Yunus Bin Hussin, Pengerusi Jawatankuasa Perindustrian, Perdagangan, Pembangunan, Keusahawanan dan Koperasi Negeri Melaka, was invited to represent Ketua Menteri Melaka. Special thanks to the organizing committee for their contributions toward the success of this conference. Congratulations!





# MAJLIS MAKAN MALAM HARI RAYA AIDILFITRI & MESYUARAT AGUNG S.M.E.

Dyah Dahari - SME

Pada 29 Oktober 2008, Society Of Manufacturing Engineer (S.M.E) telah menganjurkan Majlis Makan Malam Hari Raya Aidilfitri dan Mesyuarat Agung S.M.E di Cafeteria Kampus Industri. Seramai 600 orang pelajar telah hadir bagi memeriahkan majlis ini. Majlis pada malam itu berjalan lancar seperti yang dirancang.

Selain daripada meraikan Hari Raya Aidilfitri, Mesyuarat Agung S.M.E turut diadakan. Mesyuarat dimulakan dengan kata-kata aluan daripada Presiden S.M.E 2007/2008 iaitu Ahmad Firdaus Bin Mohd Azmi dan diikuti dengan pembubaran Jawatankuasa S.M.E Sesi 2007/2008. Sejurus kemudian, pemilihan Jawatankuasa S.M.E Sesi 2008/2009 diadakan. Berikut ialah senarai nama Jawatankuasa S.M.E 2008/2009 :



Mohd Hafizullah Bin Hamzah	(2BMFA2)	: Presiden
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Saiful A	(2BMFB2)	: Biro Akademik & Kerjaya
Nur Adila Binti Mohamad Ramli	(1BMFP2)	: Biro Akademik & Kerjaya
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Mohamad Fahmi Bin Mohd Yasin	(1BMFA2)	: Biro Informasi & Publisiti

## MAJLIS MAKAN MALAM ALUMNI FKP

Ridzuan Jamli

Pada 21 Jun 2008, bertempat di Hotel Renaissance Melaka, satu Program Majlis Makan Malam dan Ramah Mesra Bersama Alumni Fakulti Kejuruteraan Pembuatan telah dianjurkan secara bersama antara Jabatan Proses Pembuatan, wakil daripada Society of Manufacturing Engineering (SME) dan ahli terpilih daripada Alumni UTeM (AUTeM), serta Fakulti Kejuruteraan Pembuatan. Program Majlis Makan Malam dan Ramah Mesra Bersama Alumni FKP bagi tahun 2008 ini adalah program yang dirancang oleh Jabatan Proses Pembuatan bersama ahli Alumni Fakulti Kejuruteraan Pembuatan UTeM dengan tujuan untuk menghimpunkan semula bekas pelajar Fakulti Kejuruteraan Pembuatan. Program ini dijalankan bersesuaian dengan aspirasi untuk mewujudkan rangkaian hubungan yang baik di antara graduan dengan pihak fakulti bagi mengukuhkan peranan dan fungsi alumni sekaligus membina kerjasama dan merangka program bersama yang lain di masa akan datang. Program seperti ini adalah julung-julung kali diadakan. Sesungguhnya penganjuran program seumpama ini akan memberikan manfaat yang cukup besar dalam konteks merapatkan jaringan silaturrahim sesama alumni di samping menghubungkan semula bekas-bekas pelajar dengan Fakulti



Objektif utama program ini adalah untuk mengeratkan lagi hubungan silaturrahim di antara pensyarah dan para Alumni Fakulti Kejuruteraan Pembuatan dan sesama ahli Alumni. Selain itu, objektif program ini juga adalah untuk mengemaskini pangkalan data status semasa ahli Alumni Fakulti Kejuruteraan Pembuatan untuk kegunaan rujukan Fakulti Kejuruteraan Pembuatan. Para Alumni juga berpeluang untuk berkongsi idea, pandangan dan cadangan serta saluran sebarang masalah dan hal-hal yang berkaitan di antara sesama ahli Alumni dan di antara Alumni dan Fakulti. Sejurus selepas ketibaan semua peserta program termasuk Y.Bhg. Prof. Dr. Mohd Razali Bin Muhammad, Dekan Fakulti Kejuruteraan Pembuatan UTeM, majlis dimulakan dengan ucapan aluan wakil Alumni UTeM (AUTeM), Fakulti Kejuruteraan Pembuatan. Majlis kemudiannya diteruskan dengan ucapan pembukaan oleh Y.Bhg. Dekan Fakulti Kejuruteraan Pembuatan UTeM, dan penyampaian cenderahati. Para peserta bersurai sejurus selepas makan malam. Diharapkan program seperti ini dapat memberikan manfaat yang tinggi kepada semua pihak dan dapat diteruskan pada masa akan datang



## TARGET CAMP

Mohamad Nizam bin Ayof



Tanggal 16 Ogos 2008 yang lepas, pihak FKP telah berjaya menganjurkan program khas, Target Camp untuk pelajar-pelajar kemasukan terus dari tahun 1 dan 2. Program yang dijalankan secara in-house ini telah dijayakan oleh para pensyarah FKP. Penceramah jemputan dari kalangan pensyarah FKP telah berkongsi pengalaman belajar, teknik-teknik belajar, motivasi, dan survival hidup di UTeM. Beberapa aktiviti Latihan Dalam Kumpulan (LDK) juga telah dilaksanakan dengan harapan memberi memberi semangat dan pengisian kemahiran insaniah yang diketuai oleh En. Wan Hasrulnizam. Seramai 50 orang pelajar telah mengikuti Target Camp ini dengan jayanya. Kem ini diakhiri dengan aktiviti berkanak di Kampus Utama, Durian Tunggal.

## LAWATAN PEMERIKSA LUAR JABATAN REKABENTUK PEMBUATAN DAN JABATAN ROBOTIK & AUTOMASI

Nurazua binti Mohd Yusop, Nur Aidawaty bte Rafan, Tajul Ariffin Bin Abdullah

Jabatan Rekabentuk Pembuatan dan Jabatan Robotik & Automasi telah mengaturkan satu siri lawatan oleh pemeriksa luar pada 15 hingga 17 Disember 2008 yang lalu. Pemeriksa Luar tersebut adalah;

**Prof. Dr. Ir. Sapuan bin Salit**

Ketua Jabatan Bahan Kompost

Jabatan Kejuruteraan Mekanikal dan Pembuatan Fakulti Kejuruteraan, Universiti Putra Malaysia  
(bagi Jabatan Rekabentuk Pembuat)

**Prof. Dr. Nazim Mir-Nassiri**

Professor, School of Engineering, Swinburne University of Technology

(bagi Jabatan Robotik & Automasi) (Sarawak Campus, Kuching, Malaysia).

Prof. Dr. Ir. Sapuan Bin Salit telah dilantik sebagai pemeriksa luar bagi kursus Rekabentuk Pembuatan manakala Prof. Dr. Nazim Mir-Nassiri adalah bagi kursus Robotik & Automasi untuk tempoh dua tahun. Tujuan kehadiran pemeriksa luar ini adalah untuk memastikan perjalanan segala pengajaran dan pembelajaran, kurikulum dan silibus serta hal-hal berkaitan dengan jabatan seperti kemudahan makmal dan peralatan, fasiliti, pelajar serta staf menepati nilai-nilai kualiti semasa. Lawatan pemeriksa luar ini juga merupakan salah satu keperluan untuk memenuhi penilaian yang ditetapkan oleh EAC.

Mereka juga berkesempatan untuk bertemu dan berbincang dengan para pelajar tahun empat dan juga para staf jabatan disamping menilai fail subjek serta beberapa dokumen seperti beberapa Laporan Projek Tahun Akhir, soalan Peperiksaan Akhir serta Laporan Makmal pelajar.

Disamping itu, Prof. Dr. Ir. Sapuan juga telah menyampaikan syarahan akademik bertajuk "Concurrent Engineering for Composite Research" manakala tajuk syarahan yang disampaikan oleh Prof. Dr. Nazim pula adalah "Robotic & Automation: What makes a difference".

Akhir sekali, bagi meraikan kedatangan pemeriksa luar ini, pihak fakulti telah menganjurkan satu jamuan makan malam bertempat di Quayside Seafood Café & Restaurant.

### ACCREDITATION PROGRAMME FOR: BACHELOR OF MANUFACTURING ENGINEERING (MANUFACTURING MANAGEMENT) WITH HONOURS AND BACHELOR OF MANUFACTURING ENGINEERING (ENGINEERING MATERIALS) WITH HONOURS

Effendi Mohamad & Intan Sharhida Bte Othman

#### Introduction:-

At the beginning of the year 2008, there were two courses offered by the Faculty of Manufacturing Engineering of UTeM applying for the accreditation from the Engineering Accreditation Council (EAC). The accreditation by EAC was conducted on 23 – 24 July 2008. EAC is the body delegated by Board of Engineers Malaysia (BEM) for the accreditation of engineering degrees. EAC is made up by representative of the BEM, The Institution of Engineers Malaysia (IEM), the National Accreditation Board (Lembaga Akreditasi Negara (LAN)), and the Public Services Department (Jabatan Perkhidmatan Awam Malaysia (JPA)).

The objective of accreditation is to ensure that graduates of the accredited engineering programmes satisfy the minimum academic requirements for registration as a graduate engineer with the BEM and for admission to graduate membership of IEM. In addition, the objective of accreditation is to ensure that Continual Quality Improvement (CQI) is being practiced by IHLs (Institute of Higher Learning's), and accreditation may also serve as a tool to benchmark engineering programmes offered by IHLs in Malaysia.

Each of the departments are assessed and evaluated based on the following criteria.

Criterion 1: Academic Curriculum

Criterion 2: Students

Criterion 3: Academic and Support Staff

Criterion 4: Facilities

Criterion 5: Quality Management Systems

### Examples of preparations that had been done

- Determine the PEO (Programme Objective)
- Determine the PO (Programme Outcome)
- Updated file subjects for first year till fourth year
- Provide sample of lab reports
- Provide sample of answer sheet and exam questions
- List of Publications for department
- Professional members of academicians
- Assessment and evaluation of POs
- Evaluation or review of curriculum with industry/Advisory panel annua
- Provide the proof action that had been taken from external examiner comments
- Explain credit transfer policies
- Provide checklist of vetting of Examination Question Papers
- Provide proof to show industries involvement in formulating and establishing PEOs

### Overall Comments from EAC auditors regarding the two programmes are as follow

- 1) Both programmes have established strong industrial linkages. It is noted that the academic staffs are mostly young showing high motivation. This can ensure continuity of the programmes.
- 2) The following were noted for both programmes:
  - Evidence is not available on methods of establishing indicators for the score on the respective POs with respect to course outcomes.
  - None of the programme staff is registered professional engineer.
  - High laboratory hours for most of the core and elective courses.
  - There were evidences on the analysis elements for the examination questions for the elective courses. There were also evidences on analysis and design for the reviewed final year projects for the Manufacturing Management. However, most of the reviewed examination questions for the core courses were at level two of cognitive domains.
- 3) The high laboratory hours for the core and elective courses would affect the focus for in-depth coverage for the affected courses which in turn would affect the coverage on the analysis and synthesis aspects of the related courses.
- 4) The descriptive nature (level two of cognitive domain) of the most of the examination questions for the core courses would also affect the attainment of the analytical and synthesis abilities of the students.
- 5) There are evidences of higher level cognitive domains being addressed namely analysis and design for the elective courses and the reviewed final year projects for the Manufacturing Management Programme. Thus, to certain extent the Manufacturing Management Programme addressed the requirements of PO2 and PO3.
- 6) It is noted that the curriculum is more focus on manufacturing at the core courses level. These core courses provide adequate foundation for the Manufacturing Management electives. This is not the case for the Engineering Materials Programme.
- 7) Specific for Engineering Materials: Low emphasis on PO No 2 (The ability to design, develop, implement and maintain manufacturing systems) for the elective courses for the Engineering Materials Programme.

### Conclusions:-

These findings provided by the EAC auditors should be used for all departments in FKP to improve overall performance.



## MESYUARAT PANEL INDUSTRI JABATAN ROBOTIK & AUTOMASI DAN JABATAN REKABENTUK PEMBUATAN

Nur Aidawaty Rafan dan Nurazua Mohd Yusop

Mesyuarat Panel Industri Jabatan Robotik & Automasi dan Jabatan Rekabentuk Pembuatan telah diadakan pada 13 Disember 2008. Mesyuarat industri seperti dibawah:

ini diadakan untuk menilai kurikulum Sarjana Muda Kejuruteraan Pembuatan (Robotik dan Automasi) dan Sarjana Muda Kejuruteraan Pembuatan (Rekabentuk Pembuatan) yang melibatkan wakil panel dari industri. Hasil mesyuarat ini akan digunakan untuk tujuan akreditasi pada pertengahan tahun 2009 yang mana ianya penting untuk dinilai bagi usaha untuk mengukuhkan dan meningkatkan kualiti graduan Jabatan Robotik dan Automasi dan Jabatan Rekabentuk Pembuatan, Fakulti Kejuruteraan Pembuatan. Panel industri yang telah dilantik akan memberi pandangan dan maklumbalas terutamanya mengenai kurikulum dan silabus agar sejajar dengan keperluan serta sentiasa relevan dengan isu semasa dunia industri.

Bagi Jabatan Robotik & Automasi, panel industri yang telah dilantik terdiri daripada wakil daripada industri seperti berikut

- Proton Holdings Berhad
- Petronas Penapisan Melaka Sdn Bhd
- AI Automation Sdn Bhd
- Xyratex (Malaysia) Sdn Bhd
- SMC (Malaysia) Sdn Bhd
- Easy Technology Industries Sdn Bhd
- On Semiconductor (M) Sdn Bhd

- Proton Holdings Berhad
- DreamEdge Sdn Bhd
- Sensata Technologies Malaysia Sdn Bhd
- Total Maintenance Resources
- Sony EMCS (Malaysia) Sdn Bhd
- Hampshire Aerospace Sdn Bhd



## BENGGKEL PERANCANGAN TAHUNAN 2009

Pada 22 hingga 23 Disember 2008, Fakulti Kejuruteraan Pembuatan (FKP) telah berjaya menganjurkan Bengkel Perancangan Tahunan 2009 di Damai Laut, Lumut, Perak.

Tujuan bengkel ini diadakan adalah untuk merancang dan memperincikan perancangan aktiviti tahun 2009 dan seterusnya menentukan tanda aras pelaksanaan perancangan tersebut. Selain itu, bengkel ini juga telah membincangkan pencapaian objektif fakulti sepanjang tahun 2008 serta SKT dan aktiviti 2008.

Bengkel ini telah dihadiri oleh Dekan, Timbalan Dekan (Akademik), Ketua-Ketua Jabatan dan 3 wakil dari setiap jabatan serta 2 wakil dari Bahagian Pentadbiran. Senarai peserta untuk bengkel tersebut adalah seperti berikut

- |                                       |  |
|---------------------------------------|--|
| 1. Prof Dr Mohd Razali bin Muhamad    | 17. Encik Abd Halim Hakim bin Abd Aziz         |
| 2. Encik Abdul Rahim bin Samsudin     | 18. Encik Taufik                               |
| 3. Prof. Dr. Md Dan bin Md Palil      | 19. Encik Wan Hasrulnizam bin Wan Mahmood      |
| 4. Dr. Mohd Rizal bin Salleh          | 20. Encik Effendi bin Mohamad                  |
| 5. Dr. Mohd Warikh bin Abd Rashid     | 21. Encik Nik Mohd Farid bin Che Zainal Abidin |
| 6. Encik Tajul Ariffin bin Abdullah   | 22. Dr Zamberi bin Jamaludin                   |
| 7. Encik Azrul Azwan bin Abdul Rahman | 23. Puan Syamimi binti Shamsuddin              |
| 8. Encik Nor Akramin bin Mohamad      | 24. Encik Mohd Hisham bin Nordin               |
| 9. Dr Ahmad Kamely bin Mohamad        | 25. Encik Muhammad Hafidz Fazli bin Md Faudi   |
| 10. Encik Mohd Shahir bin Kasim       | 26. Encik Mohamad Nizam bin Ayof               |
| 11. Encik Azman bin Mat Aris          | 27. Encik Jeefferie bin Abd Razak              |
| 12. Encik Ammar bin Abd Rahman        | 28. Encik Jaafar bin Lajis                     |
| 13. Encik Mohamad Ridzuan bin Jamli   | 29. Cik Azriah binti Amir                      |
| 14. Dr Azizah binti Shaaban           | 30. Cik Erni hazra binti Md Johan              |
| 15. Dr Jariah binti Mohamad Juoi      | 31. Cik Marhamah binti Ahmad                   |
| 16. Encik Ismail bin Abu Shah         |  |



## INDUSTRIAL TALK: RECENT TREND IN DIMENSIONAL METROLOGY BY CD MEASURE (M) SDN. BHD.

Mohammad Kamil Sued

On 25th October 2008, an Industrial Talk was organized by the Department of Manufacturing Process for the students who registered the subject of Engineering Metrology, BMFP 3542 (a total of 270 students). The program took place at lecture rooms 5 and 6, Industrial Campus, UTeM. The talk was presented by Dr. Lim Chin Keong, the Director of CD Measure (M) Sdn. Bhd. This company is one of the leading company offering high precision and measurement services. The service covers the whole of Southeast Asia, China, Japan and other countries. The objectives of the program are:-

- To deliver the knowledge, understanding and application of Engineering Metrology subject in industry to the students.
- To introduce the challenges that needs to be faced by the students in the working environment.
- To introduce the students about the current technology available in the market.
- To build the relationships between the industry and university as a platform towards smart university-industry partnership.
- To create the opportunity for marketing the university graduate students.

The talk was started at 9:00 am and was opened by the Deputy Dean of Academic, En. Abdul Rahim Samsudin. The presentation topic by Dr. Lim, which was about the Recent Trend in Dimensional Metrology, was divided into two sub topics: The Traceability of Calibration Standard in Malaysia and Advanced Dimensional Metrology Application in Industry. The talk took about two hours and at the end of the program, souvenirs were given as a token of appreciation by the Department of Manufacturing Process, Faculty of Manufacturing Engineering, UTeM. Around 11:00 am, refreshment was served to all participants. This talk was able to attract the attention of the students and to enhance their determination in studies.



## CERAMAH INDUSTRI: اوبنومر سبتى تىكنىدى THE IMPORTANCE AND APPLICATION OF PRODUCTION TOOLS IN SHEETMETAL WORKING AND INJECTION MOULDING PROCESS

Ismail Bin Abu Shah

Pada 18hb Oktober 2008 yang lalu bertempat di BK 14,15 & 16, telah diadakan satu ceramah industri yang bertajuk "The Importance and Application of Production Tools in Sheetmetal Working and Injection Moulding Process". Program ini telah dihadiri oleh 110 orang pelajar Tahun 3 yang mengambil subjek BMFR3143 – Production Tool Design. Penceramah dari Fujitsu Component (M) Sdn Bhd telah dijemput untuk memberikan ceramah pada hari tersebut dimana dua orang wakil iaitu En. Mohd Fadzil selaku Penolong Pengurus Parts Production Department beserta Juruteknik Kanannya En. Azmi telah hadir dengan membawa beberapa 'tools', iaitu alatan yang biasa diguna pakai didalam penghasilan produk Fujitsu.

Ceramah yang dimulakan seawal jam 9.00 pagi telah dimulakan dengan kata-kata ucapan dari penyelaras subjek iaitu En. Ismail dengan mengalu-alukan kedatangan mereka ke UTeM, diikuti dengan ceramah pertama yang menyentuh tentang Fujitsu serta produk yang mereka hasilkan. Memandangkan kebanyakan komponen yang dihasilkan adalah membuat komponen fizikal untuk sensor di dalam sektor automotif, penekanan terhadap lukisan yang perlu diguna pakai untuk penghasilan produk amatlah penting.

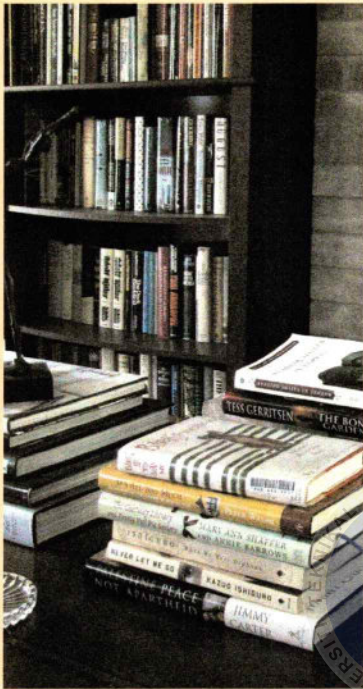
Setelah berhenti rehat, ceramah diteruskan dengan menunjukkan demonstrasi penggunaan serta pemasangan 'tools' untuk proses stamping oleh En. Azmi. Malangnya pihak penceramah tidak dapat membawa alatan yang digunakan didalam proses moulding memandangkan saiznya yang agak besar serta berat. Ceramah yang diakhiri pada jam 1.00 petang telah dapat membangkitkan minat beberapa pelajar untuk lebih mendalami bidang ini. Seheinggakan ada diantara mereka bertanyakan kiranya terdapat peluang untuk melakukan aktiviti latihan industri di Fujitsu Component (M) Sdn. Bhd. Sebagai tanda terima kasih, wakil fakulti En. Abd. Rahman telah menyampaikan cenderahati kepada kedua-dua yang hadir tersebut.



## BENGGKEL

### “OUTCOME BASED EDUCATION”

Abdul Rahim Bin Samsudin



Fakulti Kejuruteraan Pembuatan (FKP) telah berjaya melaksanakan Bengkel “Outcome Based Education” (OBE) yang dihadiri oleh 47 staf akademik pada 12 Julai 2008 bertempat di Pusat Konvensyen, Kampus Bandar, UTeM. Bengkel tahunan ini antara lain bertujuan memberi pendedahan mengenai konsep dan pelaksanaan OBE kepada staf akademik yang baru dan ulangan atau peringatn kepada staf lama.

Tumpuan utama dalam bengkel pada kali ini ialah teknik penilaian dan pemantauan berterusan yang perlu dilaksanakan setelah OBE diperkenalkan. Tumpuan juga diberikan bagi memperkemas pelaksanaan OBE selaras dengan keperluan akreditasi program yang ditawarkan oleh FKP. Bengkel sehari ini telah dikendalikan oleh En. Abdul Rahim bin Samsudin dan En. Shariman bin Abdullah. Berikut adalah hasil dapatan daripada kerja kumpulan dan pembentangan jabatan

1. Peserta telah dapat memahami bagaimana menyediakan pernyataan “Learning Outcome” yang baik, iaitu menggabungkan elemen-elemen “verb”, “condition” dan “standard”.
2. “Learning Outcome” bagi sesuatu mata pelajaran sebaik-baiknya hendaklah mengandungi ketiga-tiga domain iaitu “cognitive”, “affective” dan “psychomotor”.
3. Penentuan aras hubungan “Learning Outcome” dengan “Program Outcome” sama ada “substantial”, “moderate” atau “little emphasis” juga telah dapat diputuskan iaitu dengan melihat kepada jumlah “delivery method” dan “assessment”.
4. Penilaian sesuatu “Learning Outcome” adalah ditetapkan daripada awal iaitu semasa menyediakan “Teaching Plan” dan setiap pensyarah atau Penyelaras Mata pelajaran akan menyediakan laporan pencapaian “Learning Outcome” di akhir semester.

## BENGGKEL PEMANTAPAN

### JABATAN REKABENTUK PEMBUATAN

Nurazua binti Mohd Yusop

Bengkel Pemantapan Jabatan Rekabentuk Pembuatan telah diadakan pada 4 – 6 Jun 2008 bertempat di A Famosa Resort, Alor Gajah, Melaka. Bengkel ini disertai oleh seramai 18 orang staf Jabatan Rekabentuk Pembuatan.

Antara objektif bengkel ini adalah

- i. Memantapkan Jabatan Rekabentuk Pembuatan dari segi pengajaran dan pembelajaran, penyelidikan, penyeliaan pelajar dan Projek Sarjana Muda
- ii. Menghasilkan beberapa dokumen panduan untuk rujukan terhadap silibus-silibus dibawah penyeliaan Jabatan Rekabentuk Pembuatan

Disamping itu, bengkel ini turut memberi peluang kepada semua staf untuk mengemukakan cadangan penambakan bagi melancarkan lagi perjalanan aktiviti-aktiviti jabatan. Selain daripada itu, bengkel ini juga telah memperlihatkan kerjasama yang erat di kalangan staf Jabatan Rekabentuk Pembuatan



## Bengkel PEMANTAPAN JABATAN Robotik & Automasi

Nur Aidawaty Bt Rafan



Bengkel Pemantapan Jabatan Robotik & Automasi telah diadakan pada 16 hingga 18 Jun 2008 di Eagle Ranch Resort, Port Dickson, Negeri Sembilan. Bengkel ini telah diadakan dengan tujuan

- Pemurnian silibus subjek penting dalam kursus Robotik & Automasi
- Perancangan aktiviti jabatan
- Perancangan ROBOCON 2009
- Pembinaan team building di kalangan staf jabatan

Seramai 13 orang staf jabatan telah mengikuti bengkel selama 3 hari 2 malam ini. Selama bengkel ini dijalankan, staf jabatan diberi peluang untuk berbincang, memberikan pandangan dan maklumbalas tentang setiap aktiviti yang dijalankan. Bengkel seperti ini adalah diharapkan dapat diadakan sebagai aktiviti tahunan agar setiap staf jabatan dapat meningkatkan mutu kualiti kerja selaras dengan perkembangan terkini.

## PROGRAM KHIDMAT MASYARAKAT: CERAMAH KERJAYA DAN MOTIVASI UNTUK PELAJAR TINGKATAN 5 (SIRI II)

Muzalna binti Mohd Jusoh

Bertarikh 17 Jun 2008, dan bertempat di Dewan UTeM, Jabatan Pengurusan Pembuatan telah sekali lagi berjaya menganjurkan program Ceramah Kerjaya dan Motivasi untuk Pelajar Tingkatan Lima. Objektif program ini ialah untuk memberi penerangan kepada para pelajar yang bakal menduduki peperiksaan SPM berkenaan dengan syarat-syarat kemasukan ke Institusi Pengajian Tinggi Awam termasuk kaedah pemilihan kursus yang bersesuaian dengan keputusan dan minat pelajar. Selain itu, objektif program ini juga untuk meningkatkan tahap motivasi para pelajar supaya berusaha dengan lebih gigih dan tekun untuk mencapai keputusan yang cemerlang dalam peperiksaan SPM.

Program tahunan Jabatan Pengurusan Pembuatan ini telah disertai seramai 87 orang pelajar tingkatan lima daripada Sekolah Menengah Kebangsaan Air Keroh, Melaka. Antara intipati program ialah teknik kemahiran belajar berkesan dan pengurusan masa, latihan dalam kumpulan, cabaran minda dan lawatan ke makmal Fakulti Kejuruteraan Pembuatan.

Diharap program murni ini membantu para pelajar untuk mempunyai hala tuju masa depan yang lebih jelas di samping mempromosikan UTeM sebagai universiti pilihan pelajar.



# How to Statistically Determine the Assembly Tolerances

Bagas Wardono

Suppose that the processes of making three different parts are found to be in good statistical control. The processes are centered at the nominal value and the process capability is about  $\pm 4\sigma_X$ ; that is the specifications of each part are  $8\sigma_X$  wide. The subsequent process of the three parts is to assemble the parts lengthwise. Thus, with parts length of  $L_A$ ,  $L_B$ , and  $L_C$ , the length of the assembled part is  $L_{assembly} = L_A + L_B + L_C$ .

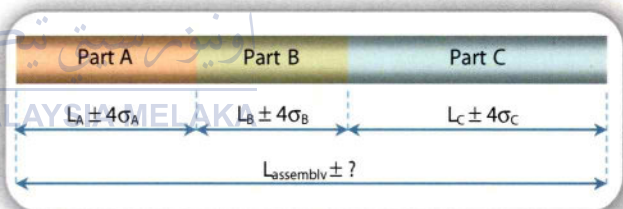
Common question concerning the assembly is: What is the tolerance that should be assigned to the assembly dimension based on the tolerances that have been assigned to each individual part dimensions?

A common answer to this question is that the assembly tolerance is just simply equal to the individual part tolerances, i.e.  $(4\sigma_A + 4\sigma_B + 4\sigma_C)$ . However, when one measures the actual tolerance of the assembly, it turns out that the assembly would have a smaller natural spread, i.e. the actual assembly tolerance is much better than  $(4\sigma_A + 4\sigma_B + 4\sigma_C)$ . Why? There are two important forces at work that govern this problem:

1. Statistical distribution of component dimensions.
2. Random assembly.

When the manufacturing process of each individual part is in statistical control, the length of the parts produced will vary over some range due to common cause variation. Assuming a normal distribution for each part's individual measurement, the distribution of the length will look like a bell shape curve with a spread of  $8\sigma_X$  wide. During the assembly process, naturally each component of the assembled part will be picked randomly. Based on the statistical way of thinking about the lengths of the individual parts, the chances of randomly selecting three parts all in the far right of their respective distribution is extremely small, i.e. assembling parts to obtain  $(L_A + 4\sigma_A) + (L_B + 4\sigma_B) + (L_C + 4\sigma_C)$ . It can be easily determined that, for each component, the probability of getting any one part measurement greater than  $4\sigma_X$  is 0.00003. Thus, the probability of getting three simultaneous parts with length greater than  $4\sigma_X$  is  $(0.00003)^3 = 0.0000000000000027$ . Therefore, obtaining an assembled part with length of  $(L_A + 4\sigma_A) + (L_B + 4\sigma_B) + (L_C + 4\sigma_C)$  is very unlikely. Consequently, it is an unrealistic way to utilize  $(4\sigma_A + 4\sigma_B + 4\sigma_C)$  as the assembly tolerance. Now, the question is how do we determine the assembly tolerance more realistically?

The answer of such question is to employ the third force that governs such situation, which is the additive law of variances  $\sigma_{assembly}^2 = \sigma_A^2 + \sigma_B^2 + \sigma_C^2$ . In terms of the standard deviation of the assembly,  $\sigma_{assembly} = \sqrt{\sigma_A^2 + \sigma_B^2 + \sigma_C^2}$ . Now, if the assembly tolerance is also set at  $\pm 4\sigma_{assembly}$ , all assemblies will fall within  $\pm 4\sqrt{\sigma_A^2 + \sigma_B^2 + \sigma_C^2}$ . It can be seen here that the statistically obtained tolerance is far smaller than the assembly tolerance obtained additively, i.e.  $4\sqrt{\sigma_A^2 + \sigma_B^2 + \sigma_C^2} \ll (4\sigma_A + 4\sigma_B + 4\sigma_C)$ .



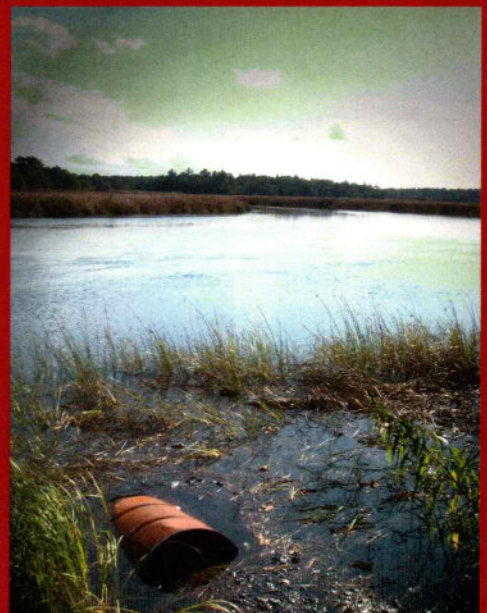
## POLLUTION CONTROL & PREVENTION METHODS IN METAL CASTING MANUFACTURING INDUSTRIES

Dr.Thoguluva Raghavan Vijayaram PhD

### Abstract

Foundry operations have significant environmental impacts, both within and beyond the casting production plant. Whilst the primary focus of casting technology is upon the economic manufacturing of castings, it is increasingly necessary to take account of effects of the processes, not just upon working conditions for foundry employees, but upon the wider environment and its communities. This article describes several approaches and methodologies for the preparation of pollution prevention. The source of pollution and different types of pollutants emitted from different areas in a foundry are explained in this paper. Some of the foundry pollution controlling methods are presented. A few guidelines have been provided to the foundry man to control and prevent pollution in foundries. It is envisioned and expected that the information provided in this paper will be useful to the foundries, particularly to their plant operators and environmental engineers.

Keywords: Pollution, pollutants, emissions, gaseous waste, scrubbers, cyclones



### 1.0 Introduction

Pollution prevention in foundries is the judicious use of materials, process energy, and foundry practices that avoid or reduce the creation of pollutants and wastes. It focuses primarily on source reduction through cast product changes and process changes, and secondarily, on on-site recycling methods. Cleaner casting production encompasses production processes and management procedures that entail less use of resources than conventional technologies and generate less waste and smaller amounts of toxic or other harmful substances. It emphasizes the human and organizational dimensions of foundry environmental management, including good casting plant operation to avoid deliberate or accidental discharges. Today, cleaner production aims to include everything from the drawing board to final disposal or reuse of the product. Cleaner casting production and pollution prevention can reduce the quantities of waste and eliminate some foundry pollutants, but treatment and disposal of remaining wastes are required. Ferrous and Non-ferrous foundries specialize in melting and casting metal into desired shapes. The waste products produced by foundries directly relate to the metal type, the furnace type, and the molding technology used. Foundries that use sand moulds generate the most waste from sand. Non-ferrous foundries and steel foundries may produce hazardous waste because of the lead, zinc, cadmium and other metals present in the waste. Cupola furnaces produce more air pollution than induction furnaces due to coke use and sand castings produce more solid waste than permanent moulds because of the sand fines that cannot be reused. By volume, gaseous waste is the largest waste source from foundries. Liquid pollution makes up a small portion of the total waste stream from foundries. Liquid waste comes from non-contact cooling water used to cool metal and other work pieces or from wet scrubber air emissions systems. Water runoff from floor cleaning and other maintenance procedures may also produce liquid waste. Pouring and cooling steps contribute about 16% of the total organic and semi-volatile wastes from foundries. Emissions from the pouring process depend on the metal temperature.



### 2.0 Pollution Induced During Casting Processing in Foundries

Casting processing are based on technologies where are used high quantities of different raw materials and chemical substances resulting wastes which pollute the biosphere which comprise all our planet's ecosystems. Among the mechanical engineering and manufacturing engineering branches, the metallurgical, iron, and steel industry, especially metals processing in foundries, are the sectors with the highest level of pollution, as a result of different specific technological processes of these activities. The different technologies, the multitude of used materials, the different pieces of sizes, their complexity, the thermal effect of the processes, the NOxes emitted, the energy and the absorbent character of the process in general, all these have an influence upon the working conditions in foundry. Each sector of activity in a foundry has besides productive results as cast moulding pieces a certain pollutants quantity. The chemical substances released in the atmosphere following the technological processes from the metallurgical industry, no matter if gases, dust, liquid, or solid waste, among which sulphur, nitrogen, carbon, oxides, metal oxides but also metal powders producing a continuous and progressive degradation of the environment on more wide areas proving their presence due to their higher concentrations or their presence for a long time inducing a chronic toxicity through accumulation. The major pollution induced by the specific activities from foundries represents the air pollution. The most influenced areas are those around the equipments, which due to the technological processes accomplished have as result emissions of different pollutants. Pollutants emitted from various work area in a foundry are given in Table -1

**TABLE 1**  
**MAJOR POLLUTANTS EMITTED FROM VARIOUS WORK AREAS IN A FOUNDRY**

Type Of Working Area Location In The Foundry	Type Of Pollutants Emitted With Reference To The Work Location In The Foundry
Pattern Shop	Saw dust and Wood Chips
Sand Preparation	Dust and Powder Materials
Molding and Core Making Section	Sand, Binder Dust, and Vapors
Mould Drying and Ladle Heating	Carbon Monoxide and Sulphur Dioxide
Cupola Furnace	Carbon Monoxide, Sulphur Dioxide, Unburnt Hydrocarbons, Smoke, Metallic-Oxides, Coke Dust, Lime Stone Dust, and Fly ash
Electric Arc Furnace	Dust, Oxides, Nitrogen Cyanide, Fluorides, Carbon Monoxide, and Sulphur Dioxide
Electric Induction Furnace	Dust, Oxides, and Smoke
Pouring and Mould Cooling	Carbon Monoxide, Binder Fumes, and Oil Vapors
Knock-Out Section	Sand, Fines, Dust, Smoke, Steam, and Vapors
Fettling	Metal Dust, Sand Fines, and Abrasive Powder
Heat Treatment	Oil Vapors, Carbon Monoxide and Sulphur Dioxide

### 3.0 Pollution Controlling Methods in Foundries

The pollution controlling methods commonly adopted in foundries are explained one by one. Filters serves for removing the particulate matter from gas or air streams by retaining it in or on the porous structure through which the gas flows. The porous structure is usually a woven or felted fabric. The filler must be continuously or periodically cleaned or replaced. The filtering action may be obtained in various ways, such as direct interception, impaction, diffusion, and electrostatic precipitation. Filters are commonly employed in pattern shops on various wood working machines, such as band saw, circular saw, and sanding machines. They are also used on cupola collection systems in conjunction with other equipment, such as after burners, gas coolers, recuperators, and exhaust blowers. Sand reclamation plants are also use bag house filters for separating fines from sand grains. Cyclones works on the principle of centrifugal separation, in which a vortex motion of the particulate matter is created within the collector. This motion provides the centrifugal force that propels the particles to locations from where they may be removed. Besides, they may either deposit the particulate matter in a hopper or concentrate it into a stream of gas that flows to another separator for ultimate collection. The cyclone is used in sand separation plants for separating sand particles from air, in cleaning the cupola exhaust, in molding shops, and on shake out stations. Cupola exhaust systems often make use of mechanical collectors. Mechanical collectors include settling chambers, baffled chambers, and fan arrangement, which collect particulate matter by gravity or centrifugal force but do not depend upon a vortex as in the case of cyclones. As their efficiency of collection is generally rated low, they are used as precleaning devices before other types of collectors. They also function in combination with filters or scrubbers. Scrubbers are employed primarily for removing gases and vapor phase contaminants from the carrier gas, though it can also remove particulate matter. A liquid, usually water, is introduced into the collector and it either dissolves or chemically reacts with the contaminant collected. Methods used to affect a contact between scrubbing liquid and carrier gas includes; spraying the liquid into chambers containing baffles, grills, or packing; flowing the liquid over weirs; and bubbling the gas through tanks or troughs of liquid. Scrubbers are ideal for cleaning exhausts of cupola furnace and electric arc furnace.



### 4.0 Guidelines for Foundries to Control and Prevent Pollution

The following foundry pollution prevention measures should be considered.

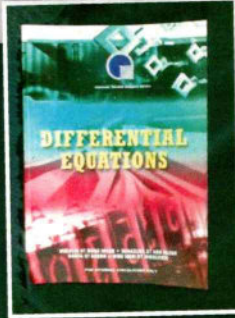
- 1 Prefer induction furnaces to cupola furnaces.
- 2 Replace the cold-box method for core manufacture, where feasible.
- 3 Improve feed quality: use selected and clean scrap to
- 4 Reduce the release of pollutants to the environment. Preheat scrap, with afterburning of exhaust gases.
- 5 Store scrap under cover to avoid contamination of storm water.
- 6 Provide hoods for cupolas or doghouse enclosures for Electric arc furnaces and induction furnaces.
- 7 Use dry dust collection methods such as fabric filters instead of scrubbers.
- 8 Use continuous casting for semi finished and finished products wherever feasible.
- 9 Store chemicals and other materials in such a way that spills, if any, can be collected.
- 10 Control water consumption by recirculating cooling water after treatment.
- 11 Use closed-loop systems in scrubbers where the latter are necessary.
- 12 Reduce nitrogen dioxide emissions by the use of natural gas as fuel, use low-nitrogen dioxide burners.
- 13 Reclaim sand after removing binders.



### 5.0 Discussions and Conclusions

Metal casting foundries generally range in size from small jobs to large manufacturing plants that turn out thousands of tons of castings each day. Generation of waste is directly related to the type of material melted and depends on the type of moulds and cores used, as well as the technology employed. The bulk of wastes generated by foundries are from melting operations, metal pouring and disposal of spent moulding materials. Wastes from sand casting operations are inherently greater than those from permanent mould or die casting foundry operations. Pollution prevention in foundries is the reduction to the extent feasible of waste that is generated or subsequently treated, stored or disposed of. The highest priorities to pollution prevention are assigned to source reduction and recycling in that order. A number of techniques or options may attain each. Sources of particulate air emissions in sand casting foundries are moulding and core making, melting, casting shakeouts and cleaning of castings. Foundries employing chemical no bake binders also emit gaseous emissions. Source control of fugitive emissions within the foundry building with appropriate containments is important in preventing pollution of the indoor plant air and maintaining worker health and comfort. Reduction in energy use through conservation and recovery techniques reduce production process and maintenance wastes within the foundry and air emissions.

## MODUL PENGAJARAN



## DIFFERENTIAL EQUATIONS

Muzalna Mohd Jusoh

This module is designed as a study guide for students in all engineering disciplines at Universiti Teknikal Malaysia Melaka.

There are five topics in this module: Introduction to Differential Equations, Second Order Linear Differential Equations, Laplace Transform, Fourier Series and Partial Differential Equations.

Suitable examples with simple explanation are given in every topic to illustrate each concept and method. Each chapter is followed by a set of activities, which provides students with a better understanding of the topic discussed as students solve the problems by themselves. The set of tutorials at the end of this module provide enough exercises so that students can improve their understanding.

Authors: Muzalna Mohd Jusoh, Irma Wani Jamaludin, Rahifa Ranom, Norazlina Abd Razak.

## ENGINEERING GRAPHICS AND CADD

Nurazua binti Mohd Yusop

Jabatan Rekabentuk Pembuatan staff, En. Zolkamain Marjom and En Hassan Altan, have developed a module for Engineering Graphics and CADD (BMFR 1113) subject. The module is used to support the teaching and learning process of the subject.



## RESEARCH GRANTS

Throughout 2008, the FKP staff have been awarded with research grants with a total amount of RM 585,500. Out of this amount, a total of RM 415,500 has been received under FRGS scheme comprising of six titles, while the rest amount, i.e. RM 170,000, was received under UTaM short term research scheme, comprising of 14 titles.

The following tables show the list of research grants awarded to FKP staff..

### SENARAI PENYELIDIKAN 'FUNDAMENTAL RESEARCH GRANT SCHEME' (FRGS) FASA 1/2008

BIL	TAJUK PROJEK	NAMA PENYELIDIK	NO. PROJEK	BAJET YANG DILULUSKAN (RM)	NO VOT	TEMPOH PENYELIDIKAN
1	The Effect on Jig Design on Hand Muscles Activities	Prof. Madya Dr. Adi Saptari - Isa bin Halim - Radin Zaid bin Radin Umar - Mr Raemy bin Md Zein	FRGS/2008/FKP (1)	70,000.00	F0066	1 Oktober 2008 – 30 April 2009
2.	A Study on the Machinability of Titanium Alloys	Dr. Bagas Wardono - Dr. Mohd Rizal bin Salleh - Taufik - Dr. Lok Yian Yian	FRGS/2008/FKP (2)	80,000.00	F0067	1 Oktober 2008 – 30 September 2010
3.	Influence of Retrogression and Reaging (RRA) Heat Treatment Process on Microstructure, Mechanical Properties and Stress Corrosion Cracking (SCC) Susceptibility of Aluminium Alloy 7075	Intan Sharhida binti Othman - Mohamad Haidir bin Maslan	FRGS/2008/FKP (3)	82,000.00	F0068	1 Oktober 2008 – 30 September 2010
4.	Mechanical Controls for Robotic-Inspired Foot-Ankle Mechanism	Ahmad Yusairi bin Bani Hashim - Noor Azuan bin Abu Osman (UM) - Wan Abu Bakar bin Wan Abas (UM)	FRGS/2008/FKP (4)	65,500.00	F0069	1 Oktober 2008 – 30 September 2011
5.	An Assessment on the Effect of Different Characteristics of Matrices to Primal and Dual Solutions in Linear Programming Problems	Muzalna binti Mohd Jusoh - PM Dr. Adi Saptari - Rohana binti Abdullah	FRGS/2008/FKP (5)	64,000.00	F0070	1 Oktober 2008 – 30 April 2010
6.	Mathematical Modeling of Stagnation Flow Towards a Shrinking Sheet	Dr. Lok Yian Yian - Anuar bin Mohd Ishak - Dr. Bagas Wardono	FRGS/2008/FKP (6)	54,000.00	F0071	1 Oktober 2008 – 30 September 2010

## SENARAI PENYELIDIKAN JANGKA PENDEK PUSINGAN PERTAMA SESI 2008 YANG DILULUSKAN

BIL	TAJUK PROJEK	NAMA PENYELIDIK	NO. PROJEK	NO VOT	BAJET YANG DILULUSKAN (RM)	TEPOH PENYELIDIKAN
1.	Corrosion Behavior of API 5L-X65 Pipeline Steel for Malaysia Oil and Gas Industry	Mohd Asyadi 'Azam bin Mohd Abid	PJP/2008/FKP (1)	S404	22,000.00	1 Januari 2008 – 31 Disember 2008

## SENARAI PENYELIDIKAN JANGKA PENDEK PUSINGAN KEDUA SESI 2008 YANG DILULUSKAN

BIL	TAJUK PROJEK	NAMA PENYELIDIK	NO. PROJEK	NO VOT	BAJET YANG DILULUSKAN (RM)	TEPOH PENYELIDIKAN
1.	The Design and Development of CIM Automated LCD Monitor Assembly System	Shariman bin Abdullah - Azrul Azwan Abdul Rahman	PJP/2008/FKP (2)	S420	15,000.00	1 Mei 2008 – 30 April 2009
2.	Study of The Surface Integrity of The Machined Workpiece in The EDM of SKD 11 Tool Steel	Liew Pay Jun	PJP/2008/FKP (3)	S421	10,000.00	1 Mei 2008 – 30 April 2009
3.	Effect Of Lead Addition On The Properties and Microstructure of LM6 Alloy	Dr. Ir. Thoguluva Raghavan Vijayaram - Dr. Ahmad Kamely Mohamad - Mohd Firdaus Mohd Nasir (P'Teknik Kota)	PJP/2008/FKP (4)	S422	9,000.00	1 Mei 2008 – 30 April 2009
4.	Grain Refinement Of LM6 Alloy Casting	Dr. Ir. Thoguluva Raghavan Vijayaram - Ahmad Kamely Mohamad	PJP/2008/FKP (5)	S423	9,000.00	1 Mei 2008 – 30 April 2009
5.	A Study on Manufacturing Wastes in Composite Aerospace Industry	Wan Hasrulnizam bin Wan Mahmood	PJP/2008/FKP (6)	S424	10,000.00	1 Mei 2008 – 30 April 2009
6.	Design Improvement of LED Bending Machine Fixture	Taufik	PJP/2008/FKP (7)	S425	10,000.00	1 Mei 2008 – 30 April 2009
7.	Development of Electro-pneumatic Jig for Robotic Drilling	Silah Hayati binti Kamsani	PJP/2008/FKP (8)	S426	15,000.00	1 Mei 2008 – 30 April 2009
8.	Lubrication Oil Analysis Using Fourier Transform Infra Red Spectroscopy	Mohd Fairuz bin Dimin @ Mohd Amin - Mohamad Nizam Ayof - Mohd Hadzley Abu Bakar	PJP/2008/FKP (9)	S427	15,000.00	1 Mei 2008 – 30 April 2009
9.	Productivity Improvement: A Case Study at a Communication Manufacturing Company	Effendi bin Mohamad - Rohana Abdullah - PM Dr. Adi Saptari	PJP/2008/FKP (10)	S428	10,000.00	1 Mei 2008 – 30 April 2009

## SENARAI PENYELIDIKAN JANGKA PENDEK PUSINGAN KETIGA SESI 2008 YANG DILULUSKAN

BIL	TAJUK PROJEK	NAMA PENYELIDIK	NO. PROJEK	NO VOT	BAJET YANG DILULUSKAN (RM)	TEPOH PENYELIDIKAN
1.	Effect of Nanofiller On Corrosion Activities On Paint Coating	Dr. Mohd Warikh bin Abd. Rashid	PJP/2008/FKP (11)	S468	10,000.00	1 Ogos 2008 – 31 Julai 2009
2.	Investigating The Effect of High Temperature Cycle and Hydrogen Exposure on The Mechanical Properties of Welded Pressure Vessel Steel	Mohamad Haidir bin Maslan - Prof. Dr. Mohd Nasir Tamin (UTM) - Kamarul Ariffin Zakaria - Dr. Mohd Warikh Abd. Rashid	PJP/2008/FKP (12)	S469	15,000.00	1 Ogos 2008 – 31 Julai 2009
3.	Automated Product Inspection System Using RFID Technology	Lokman bin Abdullah - Mohd Hisham Nordin - Mohamad Hafidz Fazli Md. Fauadi - Azrul Azwan Abd. Rahman	PJP/2008/FKP (13)	S470	10,000.00	1 Ogos 2008 – 31 Julai 2009
4.	Intelligent Automated Assembly Line System Using RFID Technology	Mohd Hisham bin Nordin	PJP/2008/FKP (14)	S471	10,000.00	1 Ogos 2008 – 31 Julai 2009



## EXHIBITIONS

In terms of the exhibition participation, FKP has participated in several international exhibitions including: International Pittsburg Exhibition 2008 – USA, International Invention, Innovation & Technology Exhibition ITEX – Kuala Lumpur, 35th International Exhibition on Invention New Techniques and Products – Switzerland, and Seoul International Fair – South Korea. From these participations, the products of FKP staff have received three gold medals, three silver medals, and three bronze medals. FKP has also participated in UTeMEX '08 which was conducted at Hall B, MITC, Ayer Keroh, Melaka. During this event, FKP has received six certificates of participation for: Rich Athletic Track, Conventional Method For Shell Helmet Mold, New Generic System for Roofing Tile Pattern Design, i-Werchair, Deco Helmet, and Shin Guard From Coconut Endorcarp. The following tables show the list of exhibition participation and the award received.

The following tables show the list of exhibition participation and the award received.

### SENARAI PENYERTAAN PENYELIDIKAN DAN PINGAT YANG DIPEROLEHI

Bil	Nama Pameran	Tempat	Tarikh	Anugerah	Nama Penyelidik
1	International Pittsburgh Exhibition 2008	USA		Gold Medal - Category of "Novelties/ Specially Gifts"	Prof. Dr. Mohd Dan Bin Md Palil
2	International Pittsburgh Exhibition 2008	USA		Silver Medal - Category of "Furniture"	Prof. Dr. Mohd Dan Bin Md Palil
3	19th International Invention, Innovation & Technology Exhibition ITEX 2007	Kuala Lumpur Conventional Centre	9-11 May 2008	Bronze Medal for shell Helmet Mold	Prof. Dr. Mohd Dan Bin Md Palil
4	UTeM Exhibition 2008 (UTeMEX'08)	Hall B, Melaka International Trade Centre	27-30 March 2008	Gold medal for Deco Armour	Prof. Dr. Mohd Dan Bin Md Palil
5	Utem Exhibition 2008 (UTeMEX'08)	Hall B, Melaka International Trade Centre	27-30 March 2008	Silver Medal for Heavy Duty Stair Climber Trolley	Prof. Dr. Mohd Dan Bin Md Palil
6	UTeM Exhibition 2008 (UTeMEX'08)	Hall B, Melaka International Trade Centre	27-30 March 2008	Bronze Medal for Kenaf Fiber Plate	Prof. Dr. Mohd Dan Bin Md Palil
7	Malaysia Technology Expo 2008	Putra World Trade Centre, Kuala Lumpur	21-23 February 2008	Silver Medal for Design of Shell Helmet Mold	Prof. Dr. Mohd Dan Bin Md Palil
8	35th International Exhibition of Invention New Techniques and Products	Geneva Palexpo, Switzerland	18-Apr-08	Gold Medal for Coconut Fibers Hybrid Composite Armour	Prof. Dr. Mohd Dan Bin Md Palil
9	Seoul International Invention Fair 2008	Seoul, Korea	11-15 Disember 2008	Bronze Medal for S-LEDPIX	Encik Taufik

### SIJIL PENYERTAAN

Bil	Produk dan Nama Pameran	Sijil	Tempat
1	Rich Athletics Track UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC
2	Conventional Method for Shell Helmet Mold UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC
3	New Generic System for Roofing Tile Pattern Design UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC
4	i-Werchair: UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC
5	Deco Helmet UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC
6	Shin Guard From Coconut Endorcarp UTeM Exhibition 2008 (UTeMEX'08)	Certificate of Participation	Hall B, MITC

## PAPER PUBLICATIONS

The FKP staff have also been active in publishing journal papers and attending conferences. In 2008, as many as 18 international journal papers, 3 national journal papers, and 53 conference papers have been submitted and published. In addition, many of the FKP staff have also participated in submitting and presenting papers for National Conference and Concurrent Engineering 2008 (DECON 2008), which was organized by the faculty of manufacturing engineering of UTeM. As many as 22 papers have been presented for DECON 2008.

The following tables show the list of publication by FKP staff.

### SENARAI PENYERTAAN JOURNAL 2008

BIL	TAJUK PENERBITAN	NAMA JURNAL	TARAF JURNAL	NAMA PENULIS
1	The Impact of External Environment on Intrapreneurial Behaviour within the Manufacturing Sector	Malaysian Management Review, July – December 2008	Kebangsaan	Profesor Dr. Mohd Razali bin Muhamad, A. S. Al-Mansur
2.	Degree of Leanness and Managerial Commitment in an Aerospace Industry	Journal of Statistics and Management System, 11(4): 2008, 653-673	Kebangsaan	Profesor Dr. Mohd. Razali bin Muhamad, A.P. Puvanasvaran, B.H. Tan, M.H.M.A. Megat, S.T.Tang, A.M.S. Hamouda
3	Lean Behaviour Among Employees in an Aerospace Industry	Jurnal Produktiviti, 25: 2008,29-44	Kebangsaan	Profesor Dr. Mohd. Razali bin Muhamad, A.P. Puvanasvaran, K.H. Ooi, M.H.M.A. Megat, S.T. .Tang, A.M.S. Hamouda
4	High Impact Hybrid Composite Materials For Ballistic Armor	Journal of Advanced Manufacturing Technology, UTeM, Vol.2 No. 1. Jan – June 2008	Antarabangsa	Profesor Dr. Md. Dan Md. Paill, Mohd Yuhazri Md Yaakob
5.	A Review of Problem Capabilities in lean Process Management	American Journal of Applied Sciences, 5(5):2008, 504-511	Anatabangsa	Profesor Dr. Mohd. Razali bin Muhamad, A.P. Puvanasvaran, M.H.M.A. Megat, S.T. Tang, A.M.S. Hamouda
6.	Engineering Facts on cast iron	The Metallurgist, UK, 25 January 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
7.	Mettalurgical Features of Steel	The Metallurgist, UK, 4 March 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
8.	Aluminium and Aluminium Alloys	The Metallurgist, UK, 6 May 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
9.	Application Potential of Copper and Copper Alloys in Metallurgical Engineering Industries	The Metallurgist, UK, 28 May 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
10.	Mechanical Properties, Advantages, and Emerging Applications of Maraging Steels	The Metallurgist, UK, 7 June 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
11.	Titanium and Titanium Alloys : Key Engineering Materials for Aerospace Applications	The Metallurgist, UK, 2 July 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
12.	Wear Performance of Flat End-Mill Cutter During Machining of Copper Based Metal	Journal of Advanced Manufacturing Technology, UTeM, Vol.2 No. 1. Jan – June 2008	Antarabangsa	Mohd. Hadzley Abu Bakar Raja Izamshah Raja Abdullah, Muhammad Jabir Suleiman
13.	Energy Conservation Method in Foundries	Indian Foundry Journal, Vol. 54 No. 7, July 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
14.	Rubber : An Effective and Suitable Elastomar for Manufacturing Engineering and Metal Working Industries	The Metallurgist, UK, 3 August 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
15..	Microgravity Solidification Technology	The Metallurgist,UK, 10 September 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
16.	Advances in Diamond Coating Technology	The Metallurgist, UK, 16 August 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
17.	Electroforming Technology: An Advanced Manufacturing Process for <etal Fabrication	The Metallurgist, UK, 22 August2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
18.	Microgravity Solidification Technology	The Metallurgist, UK, 10 September 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
19.	Metallurgical Aspects of Powder Coating Technology. Advantages and Application	The Metallurgist, UK, 6 October 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
20.	Manufacturing of FlukaGraphite Particulate Reinforced Aluminium– 11.8% Silicon Alloy Composite Castings	Foundry Journal, Vol. XX, No. 5, September-October 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram
21.	Foundry Science of Casting Solidification and Simulation Technology	Foundry Journal, Vol XX, No. 6, November-December 2008	Antarabangsa	Dr. Thouguluva Raghavan Vijayaram

## SENARAI PERSIDANGAN DAN PEMBENTANGAN KERTAS KERJA 2008

Bil.	Nama Staf	Persidangan	Tarikh	Tajuk kertas Kerja
1	Ahmad Kamely bin Mohamad	Conference on manufacturing & Electronics Technology 2008	26-27 Januari 2008	The Effect of Cutting Speed And Coating Materials On Chip Formation When Har Turning A151 D2 Cold Work Steel (60HRC)
2	Wan Hasrulnizam Bin Wan Mahmood	Malaysian Technical Universities Conference on Engineering & Technology 2008	15-16 Mac 2008	Optimal Setting of Core Parametres in CO2 Laser Machining Quality Investigation
3	Saifudin Hafiz Bin yahaya	Malaysian Technical Universities Conference on Engineering & Technology 2008	15-16 Mac 2008	Spur Gear Tooth Design using Spirals Curve Application
4	Muhammad Hafidz Fazli Bin Fauadi	Malaysian Technical Universities Conference on Engineering & Technology 2008	15-16 Mac 2008	Spur Gear Tooth Design using Spirals Curve Application
5	Rohana Bte Abdullah	Malaysian Technical Universities Conference on Engineering & Technology 2008	15-16 Mac 2008	Simulation Modelling For Balancing And Optimizing A DMD Production Line
6	Taufik	Malaysian Technical Universities Conference on Engineering & Technology 2008	15-16 Mac 2008	Study on Design Optimization in Design of sheet Metal Part
7	Muhammad Hafidz Fazli Bin Fauadi	International Conference on Plant Equipment & Reliability	27-28 Mac 2008	Mobile Application Architecture for Measuring Shaft
8	Zulkeflee Bin Abdullah	International Conference on Plant Equipment & Reliability	27-28 Mac 2008	Inculcate Critical Thinking Skills Through "Problem Based Learning" & "Video Streaming Method" : Case study in the Subject "Engineering in Society"
9	Shajahan Bin Maidin	The International Conference on Professional Ethics and Education 2008	13 Mei 2008	Curriculum Structure of Degree Programme Offered by The Department of Manufacturing Design
10	Dr. Thogoluva Raghavan Vijayaram	The International Conference on Professional Ethics and Education 2008	13-15 Mei 2008	Evaluation on The Entrepreneurial skills of Engineering students
11	Effendi Bin Mohammed	International Conference On Mechanical and Manufacturing Engineering (ICME)	21-23 Mei 2008	A Study on The Development of Key Performance Indicators (KPIs) At An Aerospace Manufacturing Company
12	Effendi Bin Mohammed	International Conference On Mechanical and Manufacturing Engineering (ICME)	21-23 Mei 2008	Simulation Based Control System for a Flat Screen Monitor Remanufacturing System
13	Muhammad Hafidz Fazli Bin Fauadi	National Conference on Science, Technology and Social Science (STSS)2008	3-4 Jun 2008	Establishing Total Preventive Maintenance (TPM) For General Purpose Industrial Machinery using Expert System Approach (ExGIM)
14	Muhammad Hafidz Fazli Bin Fauadi	National Conference on Science, Technology and Social Science (STSS)2009	3-4 Jun 2008	Perkongsian Pengetahuan Dalam Industri Pembuatan- Kajian Pengimplementasi Dalam Skop Organisasi Pembuatan Senjata
15	Wan Hasrulnizam Bin Wan Mahmood	Knowledge Management International Conference 2008	10-12 Jun 2008	Enhancement of An Effective Training in Manufacturing Company
16	Wan Hasrulnizam Bin Wan Mahmood	Knowledge Management International Conference 2008	10-12 Jun 2008	Industrial Application Tools and Techniques in Lean Manufacturing and Total Quality Management
17	Rohana Bte Abdullah	Knowledge Management International Conference 2008	10-12 Jun 2008	Managing Key Performance Indicators (KPIs) : A case Study At an Aerospace Manufacturing Facility
18	Muhammad Hafidz Fazli Bin Fauadi	International Business and industrial Information Management Conference (10th IBIMA)	30 Jun - 2 Julai 2008	Implementing Knowledge Management (KM) Within Defence-related Manufacturing Organization
19	Puvanasvaran a/ I A. Perumal	The 6th International Conference on Manufacturing Research (ICMR08)	9-11 Sept 2008	People Development System to Enhance Problem Solving Capabilities in Implementng Lean Process Management : A Case Study in Aerospace Company
20	Wan Hasrulnizam Bin Wan Mahmood	Asia Pasific Conference on Management of Technology and Tech Entrepreneurship	29-30 October 2008	Lean Manufacturing : A Survey
21	Wan Hasrulnizam Bin Wan Mahmood	International Conference on The Roles of The Humanities and Science Social Sciences in Engineering 2008 (ICoHSE 2008)	5-6 Disember 2008	Autonomus Maintenance For Job Base in Technical University

22	Radin Zaid Bin Radin Umar	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	An Antropometric Evaluation of Workstation Design : A Case Study in An Automotive Industry
23	Dr. Bagas Wardono	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	CO2 Laser Drilling On 304 Stainless Stell
24	Shajahan Bin Maidin	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design and Development of Plastic Injection Mould with Concurrent Engineering
25	Taufik	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design Improvement of Turbocharger Using CFD, Design Improvement of Wheel Spacer
26	Wan Hasrulnizzam Bin Wan Mahmood	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Analysis of Fuguai(Abnormalities) on Milling Machine Towards Autonomuos Maintenance in Engineering Education
27	Mohd Shahir Bin Kasim	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	An Investigation of The Effect of Cylindrical Grinding Parametres On SUS316 Surface Roughness
28	Puvanasvaran a/l A. Perumal	The 6th International Conference on Manufacturing Research (ICMR08)	9-11 Sept 2008	People Development System to Enhance Problem Solving Capabilities in Implementng Lean Process Management : A Case Study in Aerospace Company
29	PM Adi Saptari	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	An Analysis of Jig Design Assembly Time in Plug Assembly Line Using Design of Experiment
30	Isa Bin Halim	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Application of Ergonomic Analysis Quality Function Deployment (QFD) to Design A Material Handling Device
31	Syamimi Bte Shamsudin	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Performance Analysis of a SixAxis COMAU Robot
32	Ruzaidi Bin Zamri	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	A Review of Novel Sensing Techniques For Automatic Polishing Robot System
33	Nurazua Bte Mohd Yusop	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design and Development of Automated "Prs Device" For Emerged Stamp
34	Nur Aidawaty Binti Rafan	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design of PLC Controller for An Automated Parking System
35	Liew Pay Jun	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design Consideration in Machining and Assembly Process for Plastic Injection Mould
36	Saifudin Hafiz Bin yahaya	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Development of Gear Curve using an Sshaped Transition Curve
37	Prof. Dr. Md. Dan Bin Md. Palil	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	The Impact and Flexural Study of Polymeric Biocomposite
38	Lokman bin Abdullah	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design and Fabrication of a Pen Holder using Automated Coloc Sorting Robot
39	Wahyono Saptowidodo	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Dynamic Simulation of Rollover Test in Compliance with The Malaysia Road and Transportation Regulation (UN/ECE R66)
40	Effendi Bin Mohammed	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	The Level of Achievement of Lean Manufacturing Implementation Status Before and After The Development of KPIs at Aerospace Manufacturing Company
41	Dr. Thogolva Raghavan Vijayaram	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Design and Manufacture of Fluka- Graphite Particulate Reinforced Aluminium Silicon Eutectic Alloy Matrix Composites
42	Wahyono Saptowidodo	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Finite Element Analysis of Wide Rim Alloy Wheel
43	Mohd Yuhazri Bin Yaakob	National Conference and Concurrent Engineering 2008 ( DECON 2008)	28-29 Oktober 2008	Coconut Fibers Composite Material
44	Shajahan Bin Maidin	2nd International Conference on Science and Technology Application in Industry and Education (ICSTIE 2008)	12-13 Dis 2008	Operation Parameter Optimization for Rapid Prototype
45	Taufik	2nd International Conference on Science and Technology Application in Industry and Education (ICSTIE 2008)	12-13 Dis 2008	Design Improvement of Tubocharging using Genetic Algorithm
46	Dr. Thogolva Raghavan Vijayaram	2nd International Conference on Science and Technology Application in Industry and Education (ICSTIE 2008)	12-13 Dis 2008	Technical Review on Rubber History, Technology of Rubber Processing and Its Applications In Engineering

47	Wan Hasrulnizzam Bin Wan Mahmood	National Management Conference 2008	13-14 Dis 2008	Development of An Office TPM for Lecturer's Room
48	Liew Pay Jun	3rd International Conference on Engineering and Technology 2008	3-5 Nov 2008	Analysis of The Influence of EDM Parameters On Surface Roughness and Surface Hardness
49	Syahrul Azwan Bin Suandi	International Conference on Science and Technology (ICSTIE '08)	12-13 Dis 2008	Simplification of Five-Axis Machining for Aerospace Part
50	Syahrul Azwan Bin Suandi	2nd Engineering Conference (ENCON 08)	18-19 Dis 2008	Simplification of Five-Axis Machining for Aerospace Part: Effect on Product Cost
51	Syahrul Azwan Bin Suandi	The 4th Malaysian Software Engineering Conference	16-17 Dis 2008	Five Axis Machining Programming using CATIA V5R16 for Aerospace Part
52	Syahrul Azwan Bin Suandi	Symposium on Engineering and Technology 2008	15-16 Dis 2008	Methods and Approaches: Simplification of Five-Axis to Three-Axis Machining
53	Puan Intan Shahirda	Malaysian Metallurgical Conference (MMC2008)	3-4 Dis 2008	The Influence of Retrogression and Reaging (RRA) Procedures on Tensile Strength and Stress Corrosion Cracking (SSC) Susceptibility of Aluminum Alloy

## SHORT COURSES AND WORKSHOPS

In order to enhance the skills and knowledge of the staff, many of the FKP staff have been sent to attend short courses and workshops. The following table shows the various short courses attended.

### KURSUS DAN BENGKEL YANG DIHADIRI STAF SEPANJANG 2008

Bil.	Kursus	Nama	Tarikh & Tempat
1	Data Analysis Using SPSS	Ruzaidi Bin Zamri	31/01-01/02/2008 FTMK, UTeM
2	RFID One Day Course	Mohd Amri Bin Sulaiman/Ruzy Haryati Bte Hambali	29/01/2008 PENTMASTER, Penang
3	Conference on manufacturing & Electronics Technology 2008 Dan Pembentangan Kertas Kerja "The Effect of Cutting Speed and Coating Materials on Chip Formation When Har Turning A151 D2 Work Tool Steel (60HRC)	Ahmad Kamely Bin Mohamad	26-27/01/2008 UTM Skudai, Johor
4	MUCET 2008 dan Kertas Kerja "Optimal Setting of Core Parameters in CO2 Laser Machining Investigation	Saifudin Hafiz Bin Yahya	8-9/03/2008 Putra Palace, Perlis
5	MUCET 2008		7-10/03/2008
6	Latihan Keusahawanan & Tekno Usahawan		28/01/2008 Kampus Bandar UTeM
7	Seminar Sains, Teknologi & Sains Sosial (STSS)	Wan Hassrulnizam/ Muhamad Hafidz Fazli	3-4 Jun 2008 UITM Pahang
8	ASM Lecture Series : Copolymers	Ahmad Yusairi	23/02/2008 Kuala Lumpur
9	Kursus Pengurusan Keselamatan Bengkel dan Makmal Bahan Kimia	Ahmad Kamely Bin Mohamad	11/3-13/3/2008 Kampus Bandar UTeM
10	MUCET 2008 dan Kertas Kerja "Generic Process Planning Requirement For Plastic Mould Manufacturing Organization	Muhamad Hafidz Fazli, Adi Saptari, Taufik	15-16 Mac 2008 UNIMAP, Perlis
11	MUCET 2008 dan Kertas Kerja "Simulation Modeling For Balancing And Optimizing A DMD Production Line	Rohana Abdullah	15-16 Mac 2008 UNIMAP, Perlis
12	MUCET 2008 dan Kertas Kerja "Study on Design Optimizing in Designing of Sheet Metal Part	Taufik	15-16 Mac 2008 UNIMAP, Perlis
13	Seminar : The Significart of Virtual Instrumentation to Defense	Azrul Azwan	27 Februari 2008 UPNM, Kuala Lumpur
14	Silicon Rubber Mould	Ruzy Haryati/ Mohd Amran	10-12 Mac 2008 UiTM Shah Alam
15	Education & Development Conference 2008	Zulkeflee Bin Abdullah	07-09/03/2008 Thailand
16	International Conference on Plant Equipment and Reliability	Muhamad Hafidz Fazli/ Mohd Shahir	27-28 Mac 2008 Sunway lagoon Resort Hotel
17	MATLAB & Simulink Infoday for Teaching Professionals & Researchers	Nik Mohd Farid / Silah Hayati	24-25 Mac 2008 Hotel Quality, Shah Alam

18	Accreditation- Expectation of The Washington Accord	Prof Dr Mohd Razali/ Abdul Rahim/ Azrul Azwan/ Mohd Warikh/Tajul Ariffin /PM Dr Adi Saptari/ Dr Rizal	30 Mac 2008 Hotel Pan Pacific KLIA
19	Design of jigs and Fixtures	Ismail/ Taufik/ Mohd Ridzuan Jamli	31 Mac 2008 BATC UTM Skudai, Johor
20	Design of Sheet Metal Forming Dies	Ab Rahman/ Lokman/ Ismail/ Mohd Ridzuan Jamli	1 April 2008 BATC UTM Skudai, Johor
21	Profile Grinding Process	Mohd Nizam Abd Rahman	Super Abrasives Engineering Pte. Ltd. Singapura
22	The International Conference on Professional Ethics and Education 2008	Dr. Thogoluva	13-15 Mei 2008 Istana Hotel, Kuala Lumpur
23	International Conference on Mechanical and Manufacturing Implementation : A Study on The Development of Key Performance Indicators (KPIs) At An Aerospace Manufacturing Company	Effendi	21-23 Mei 2008 Puteri Pacific Johor Bahru
24	ICME 2008 : International Conference on Mechanical and Manufacturing Engineering 2008	Azrul Azwan	21-23 Mei 2008 UTM Skudai
25	International Conference on Radiation Protection & Workshop 2008	Mohd Fairuz Dimin	27-29/5/2008 Batu Feringghi, Pulau Pinang
26	Knowledge Management International Conference 2008	Wan Hassrulnizam/ Rohana Abdullah	10-12/6/2008 Langkawi, Kedah
27	International Conference on Professional Ethics and Education 2008	Shajahan bin Maidin	12/5/2008 Universiti Islam Malaysia, Kuala Lumpur
28	FMM 3rd International conference On Excellence In Manufacturing	Effendi Bin Mohammad/ Nor Akramin	17/6/2008 Sunway Resort Hotel & Spa, Selangor
29	International Business and Industrial Information Management Conference (10th IBIMA)	Muhammad Hafidz Fazli	30/6- 2/7/2008 Kuala Lumpur
30	Design of Experiment	Mohamad Kamil	30/6-2/7/2008 Mahkota Hotel, Melaka
31	National Higher Education Conference	Azrul Azwan, Mohd Warih, Tajul Ariffin, Dr Rizal, Ahmad Kamely	1-2/7/2008 Hotel NIKKO, Kuala Lumpur
32	9th Short course on Advanced Metallography & Microstructural Analysis 2008	Intan Sharhida	18-19/6/2008 Universiti Teknologi Malaysia, Skudai, Johor
33	Course On Electron Backscatter Diffractions in Scanning Electron Microscope	Mohamad Haidir	18-19/6/2008 Pusat Pengajian Kejuruteraan Bahan dan Sumber Mineral, USM
34	International Furniture Conference and Exhibition (2008icfx)	Tajul Ariffin	28-30/7/2008 Putra World Trade Centre, Kuala Lumpur
35	2-Day Workshop On Sustainability in Energy and Materials	Ahmad Yusairi	30-31/7/2008 UNIMAP, Perlis
36	Seminar Kesalahan Bahasa	Ahmad Yusairi	19-20/8/2008 Hotel Putra, Kuala Lumpur
37	2-Day Public Seminar "From Lab to Market" Cambridge's R&d Experience	Effendi/Rohana	2-3/8/2008 Hotel Seri Pacific, Kuala Lumpur
38	Fifth International Conference on Computer Graphics, Imaging and Visualization (CGIV08)	Saifudin Hafiz Bin Yahya	25-28 Ogos 2008 Universiti Sains Malaysi, Pulau Pinang
39	From Lab to Market: Cambridge's R&D Experience	Ruzaidi, Rohana	2-3 Ogos 2008 Hotel Seri Pacific, Kuala Lumpur
40	Bengkel Pemindahan Tesis kepada Buku	Sivarao	11-15 Ogos 2008 Hotel Crystal Crown
41	International Conference on Science & Technology	Wan Hasrulnizzam, Shajahan	12-13 Ogos 2008 Pulau Pinang
42	Seminar Kemahiran Insaniah & Kesejahteraan Sosial (SKIKS 08)	Wan Hasrulnizzam, Shajahan	18-19 Ogos UTeM
43	Kursus Pra-Persaraan Kakitangan Kerajaan	Sa'adiah	21-23 Ogos 2008 Langkawi, Kedah
44	Seminar Kesalahan Bahasa Dalam Penulisan	Ahmad Yusairi	19-20 Ogos 2008 Hotel Putra Kuala Lumpur
45	Fiffth International Conference on Computer Graphics, Imaging and Visualisation (CGIV08)	Saifudin Hafiz Bin Yahya	25-28 Ogos 2008 USM Pulau Pinang
46	ISO/TS16949 QMS Failure Mode & Effect Analysis	Jeeferie	8-10 September 2008 Everly Resort Hotel, Melaka
47	Kursus International English Language Testing System (IELTS) Siri 11/2008	Johny Purnomo, Chang Siang Yee	31 Oktober-2 November 2008 pusat Konvensyen, Kampus Bandar
48	Kursus Working Independently Workshop	Razifah, Mohd Hisham, Zuraida	31 Oktober-2 November 2008 Casa Rachado Resort, Port Dickson
49	Kepimpinan Pensyarah Muda Kementerian Pengajian Tinggi	Effendi, Liew Pay Jun	11-15 Disember 2008 Kem Bina Negara Kundasang, Sabah

50	Kursus Communication Skills For Effective Teaching : Enhancing Teaching Effectiveness (COMSET)	Chang Siang Yee	11-12 November 2008 Pusat Konvensyen, Kmapus Bandar
51	Kursus e-Pembelajaran (SPd.)	Johny Purnomo, Hasoloan Haery	13-14 November 2008 Pusat Konvensyen, Kampus Bandar
52	Kursus Microsoft Publisher 2007	Nur Hidayah	17-18 November 2008 Makmal Artificial Intelligence FTMK
53	Bengkel Tesis Ke Buku	Johny Purnomo, Abd Halim Hakim, Ahmad Yusairi, Mohd Amri, Mohd Shahir, Sivarao, Syamimi	20-21 November 2008 Bilik E-Learning, Pusat Pengajaran & Pembelajaran, Kampus Bandar
54	Sesi Ceramah Fakulti Kejuruteraan Elektronik dan Kejuruteraan Komputer	Radin Zaid, Nadiah, Chang Siang Yee, Siti Rahmah, Hidayah	27 November 2008 Kafeteria Staf UTeM, Kampus Tetap Durian Tunggal
55	Seminar Berkenaan Isu-Isu Semasa Dalam Bidang Pengurusan, Bahan dan Proses Pembuatan	Mohd Irman, Ammar, Mohd Shukor, Liew Pay Jun, Khairol Anuar, Lokman, Ahmad Yusairi, Mohamad Syafik, Suriati, Nurul Hidayah, Radin Zaid, Nadiah, Saifudin Hafiz, Mohamad Haidir, Jeeferie, Siti Rahmah, Chang Siang Yee, Ab. Rahman, Hasoloan Haery Pieter, Muzalna	27 November 2008 Auditorium MITC
56	Kursus Programmable Logic Controller (Advanced) with SCADA System Integration	Syamimi, Azrul Azwan, Mohamad Zin	1-4 Disember 2008 MITC Konvensyen Center
57	Kursus "Development of Industrial Data Acquisition and Monitoring System"		1-4 Disember 2008 MITC Konvensyen Center
58	Bengkel Penyediaan Dokumen Audit Prestasi Akademik	Nur Azriah	2 Disember 2008 Avillion Legacy
59	Malam CIPTA- Cetusan Inspirasi Projek Teknikal dan Aplikasi	Prof. Dr. Haji Md Dan, Taufik	3 Disember 2008 Hotel City Bayview
60	Bengkel Sehari Latihan Asas PERASA	Johny Purnomo, Mohamad Nizam, Mohd Irman, Mohamad Kamil, Razifah, Siti Rahmah	11 Disember 2008 Hotel Avillion Legacy

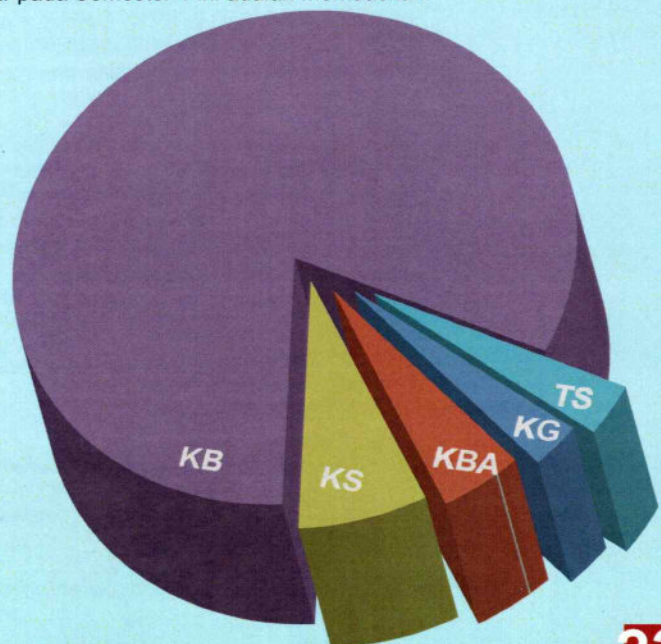
## Analisis Keputusan PEPERIKSAAN AKHIR SEMESTER 1, SESI 2008/2009

Peperiksaan akhir semester 1 telah diadakan pada 3 hingga 20 November 2008 yang lalu. Manakala keputusan rasmi peperiksaan telah diumumkan melalui portal UTeM mulai pada 24 Disember 2008. Secara keseluruhan, keputusan pelajar pada Semester 1 ini adalah memuaskan.

Ringkasan analisa adalah seperti berikut:

Kedudukan Baik (KB) : 1012 orang (92.76%)  
 Kedudukan Bersyarat (KS) : 41 orang (3.76%)  
 Kedudukan Gagal (KG) : 10 orang (0.92%)  
 Tidak Selesai (TS) : 7 orang (0.64%)  
 Kedudukan Baik Anugerah (KBA) : 21 orang (1.92%)  
 Jumlah Pelajar : 1091 orang

- KB 1012, 92.76%
- KS 41, 3.76%
- KBA 21, 1.92%
- KG 10, 0.92%
- TS 7, 0.64%



**Tahniah...**

Fakulti mengucapkan tahniah kepada Cik Chang Siang Yee yang merupakan bekas pelajar cemerlang FKP kerana telah menerima Anugerah Pelajaran DiRaja pada Konvokesyen Ke 4 yang berlangsung pada 9 hingga 10 Ogos 2008 lalu.

Beliau juga telah dianugerahkan IEM Gold Medal Awards 2008/2009. Anugerah ini diberikan oleh Lembaga Jurutera Malaysia (IEM) kepada pelajar terbaik bidang kejuruteraan daripada setiap IPT.

Fakulti telah menghantar 20 orang staf pada tahun 2008 bagi melanjutkan pengajian ke Peringkat Doktor Falsafah (PhD) dan juga Ijazah Sarjana (MSc)

- o Cik Zaleha binti Mustafa (PhD)/UK
- o En. Mohd Hadzley bin Abu Bakar (PhD)/UK
- o Pn. Rosidah binti Jaafar (PhD)/UK
- o Pn. Seri Rahayu Binti Kamat (PhD)/UK
- o Pn. Zurina binti Shamsudin (PhD)/UK
- o En. Shajahan bin Maidin (PhD)/UK
- o En. Lau Kok Tee (PhD)/Australia
- o En. Zulkeflee bin Abdullah (PhD)/Australia
- o En. YM Raja Izamshah bin Raja Abdullah (PhD)/Australia
- o En. Mohd Amran bin Ali (PhD)/Jepun
- o En. Asyadi' Azam bin Mohd Abid (PhD)/Jepun
- o En. Isa bin Halim (PhD)/UiTM
- o En. Muhammad Syafiq bin Syed Mohamad (MSc)/USA
- o En. Radin Zaid bin Radin Umar (Msc)/USA
- o Pn. Nadiyah binti Ahmad (Msc)/USA
- o En. Hazman bin Hasib (MSc)/USA
- o En. Mohd Najib bin Ali Mokhtar (Msc)/Germany
- o En. Muhammad Zaimi bin Zainal Abidin (MSc)/Jepun
- o En. Syahrul Azwan bin Sundi@Suandi (Msc)/UTeM
- o Cik Siti Rahmah binti Shamsuri (Msc)/UTM

**Selamat Berjaya**

## Letak Jawatan

FKP ingin merakamkan sekalung penghargaan dan jutaan terima kasih di atas sumbangan dan jasa bakti yang telah dicurahkan untuk membangunkan fakulti dan uiversiti selama tempoh berkhidmat di universiti ini. Semoga beliau terus berjaya di dalam kehidupan dan kerjaya yang bakal ditempuhi di masa akan datang.

- o **Prof. Madya Jasmin binti Baba**

## Perkahwinan

Tahniah diucapkan kepada staf yang telah melangsungkan perkahwinan. Semoga mahligai yang dibina akan terus menyinar dan berkekalan. Amin...

- o Ammar bin Abd Rahman, Pensyarah
- o Muhammad Syafiq bin Jumali, Pensyarah
- o Mohd. Zahar bin Sariman, Juruteknik
- o Mohd. Taufik bin Abd Aziz, Juruteknik
- o Khairul Effendy bin Mansor, Juruteknik
- o Muhamad Arfauz bin A.Rahman, Pensyarah
- o Nor Fauzi bin Tamin, Juruteknik
- o Suriati binti Akmal, Pensyarah

FKP mengalu-alukan dan mengucapkan selamat datang kepada staf baru sepanjang tahun 2008 yang terdiri daripada pelbagai gred jawatan.

- o Dato' Prof Dr. Abu bin Abdullah, Profesor (Telah tamat tempoh pinjaman di Canselori pada 31/12/2008)
- o Prof. Dr. Md. Dan bin Palil, Profesor Pelawat (mulai 4/11/2008)
- o Dr. Joseph Sahaya Anand, Profesor Madya DS53 (mulai 1/12/2008)
- o Dr. Mohamed Khaled Omar, Profesor Madya DS 53 (mulai 30/12/2008)
- o Mohd Yuhazri bin Yaacob, Pensyarah Gred DA 45 (mulai 28/4/2008)
- o Mohd Najib bin Ali Mokhtar, Tutor Gred DA 41 (mulai 27/12/2007)
- o Siti Rahmah binti Shamsuri, Tutor Gred DA 41 (mulai 5/5/2008)
- o Mohd Sanusi bin Abdul Aziz, Tutor Gred DA 41 (mulai 5/9/2008)
- o Chang Siang Yee, Tutor Gred DA 41 (mulai 12/9/2008)
- o Nurul Hidayah binti Arshad, Tutor Gred DA 41 (mulai 13/10/2008)
- o Azman bin Mat Aris, Penolong Pendaftar N 41 (mulai 1/4/2008)
- o Nur Ain Zakirah binti Bahari, Penolong Akauntan W 27 (mulai 1/2/2008)
- o Razifah binti Mat Rais, Pembantu Tadbir (P/O) Kanan, N 22 (mulai 1/2/2008)
- o Nur Hidayah binti Mustafah, Pemb. Tadbir (Kesetiausahaan) Gred N17 (mulai 14/7/2008)
- o Mazlan bin Mehat, Pembantu Tadbir (P/O) N 17 (mulai 1/2/2008)
- o Noridayu binti Baharom, Pembantu Tadbir (Kewangan) W 17 (mulai 18/2/2008)
- o Shamsiah Hasita binti Shafie, Juruteknik J 17 (mulai 30/1/2008)
- o Mohd Farihan bin Mohamad Sabtu, Juruteknik J 17 (mulai 29/1/2008)
- o Fakrulnaim bin Ibrahim, Juruteknik J 17 (mulai 30/1/2008)
- o Mohd Taufik bin Abd. Aziz, Juruteknik J 17 (mulai 1/2/2008)
- o Norzuriyahni binti Abu Bakar, Juruteknik J 17 (mulai 12/12/2008)
- o Mohamad Zin bin Mahmud, Juruteknik J 17 (mulai 14/2/2008)
- o Siti Aisah binti Khadisah, Juruteknik J 17 (mulai 3/3/2008)
- o Muhammad Azwan bin Abdul Kadir, Juruteknik J 17 (mulai 3/3/2008)
- o Jazlan bin Jamal Abdul Nasir, Juruteknik (Kontrak) J 17 (mulai 3/10/2008)
- o Janatul Hafiz bin Basir, Juruteknik (Kontrak) J 17 (mulai 3/10/2008)
- o Mohd Hanafiah bin Mohd Isa, Juruteknik J 17 (mulai 3/11/2008)



## FKP NEWS & INFORMATION

# KELAHIRAN

Tahniah diucapkan kepada staf yang mendapat cahaya mata:-

- o Dr. Mohd Rizal bin Salleh – perempuan.
- o Effendi Mohammad – perempuan.
- o Khairul Anuar Abd. Rahman – lelaki.
- o Lokman Abdullah – perempuan.
- o Mohd. Amri Sulaiman – perempuan.
- o Mohd. Edeerozey Abd. Manaf – perempuan
- o Azrul Azwan Abdul Rahman – lelaki
- o Syamimi binti Shamsudin – lelaki
- o Silah Hayati binti Kamsani/Nik Mohd Farid bin Che Zainal – perempuan
- o Noridayu binti Baharom – lelaki
- o Noor Azian binti Mahmood – perempuan
- o Radin Zaid bin Radin Umar/Nadiyah bt Ahmad – lelaki
- o Mohd Nazri bin Abd Mokte – perempuan
- o Mohamad Nizam bin Ayof – perempuan
- o Nur Aidawaty binti Rafan – lelaki
- o Mohd Fairuz bin Ninggal – perempuan
- o Ahmad Faizul bin Ahmad Tajudin – perempuan
- o Mohamad Zin bin Mahmud – perempuan
- o Rahimah binti Abdul Hamid – perempuan
- o Nurul Hidayah binti Arshad – lelaki
- o Zurina binti Shamsudin – perempuan
- o Shariman bin Abdullah – lelaki
- o Taufik – lelaki

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

## NEW EQUIPMENT

### CNC Five-axis Universal Milling Machine DMU 60 monoBLOCK®

On December 23rd, 2008, a new CNC Five-axis Universal Milling Machine DMU 60 monoBLOCK® has been delivered to the Faculty. The machine is installed at the Mould & Die Laboratory and is expected to enhance the Faculty capability in the manufacturing competitiveness. The advanced DMU Series sets new standards in production machining with its added operational capacity, increased precision and higher surface quality. With three to five axes, higher dynamics, a new swivel milling head with a B-axis for negative angles up to 30°, a unique choice of different spindle options and the large range of options, this Universal Milling Machine provides lots of opportunities in research activities, as well as enhancing the students' skills in operating CNC machines. By utilizing the machine, the Faculty will embark into a more advanced machining area, such as aerospace part machining and mould making. The machine is equipped with a modular monoBLOCK® design that ensures the necessary rigidity and also offers optimal ergonomics and is completely user-friendly. Among the features of the machine are:

- 7.4 inch horizontal spindle clearance at the table surface.
- More than 30% time reduction: up to 100% improved acceleration in the linear axes with 25% less chip-to-chip times and 3-times faster rotary axes.
- 150° B-axis: Machining of negative angles up to 30°, rapid traverse and feed rate up to 35 rpm.
- 3- to 5-axes: Standard 3-axis machine with a fixed table and manual swivel milling head with the option for 5 axes.
- NC rotary table: Loading up to max. 1,764 lbs; rapid traverse and feed rate up to 40 rpm.
- Spindles speed: Up to 42,000 rpm.
- Standard: Scraper belt conveyor integrated into the machine.
- Convenient design for easy motor spindle maintenance.

With all these features, the Faculty is one step ahead into the latest generation of Universal Milling, in line with one of the Faculty niche areas, Advanced Manufacturing.



# NEW EQUIPMENT Physical Vapour Deposition Machine VTC PVD-1000

Md Nizam Bin Abd Rahman

The commencement of Physical Vapour Deposition (PVD) model VTC PVD-1000 equipment in November 2008 was to enhance the effectiveness of teaching and learning activity and enable research in thin film coating body of knowledge. This is in synergy with FKP's mission statement on teaching and learning and research and consultation. The PVD system, manufactured by VAC-TEC Korea, utilised DC Magnetron Sputtering system to deposit conductive thin film coating on to substrate. Some of its features are unbalanced magnetron cathodes, planetary substrate holders, ion source, DC substrate bias, and pulse substrate bias capabilities. Currently the PVD system is being used to support undergraduate course, Advance Manufacturing Process, and two PhD level research activities on thin film coating on cutting tool. Below are some of the technical specifications of the PVD system:

**Cathodes**

- o Target dimensions: 600mm x 100mm x 30mm
- o Power (max) : 800V ; 15A

**Ion source**

- o Power: 2kW
- o Ion current: 0-0.4 A
- o Ion energy : 0- 2000eV

**Substrate Temperature (max) : 600 C**

**Vacuum system**

- o Ultimate operating pressure: 1xE-6 torr

**Chamber**

- o Effective coating volume: 400mm (L) x 400mm (D)



## GALLERI DECON 2008

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