

# MIMET Ahoy !

JULAI  
2009  
#1

BULETIN UniKL MIMET

STAF MIMET JUARA  
SUKAN UNIKL



## MIMET... UNSINKABLE !!

### Revolusi Pemikiran

### ILMU

MATLAB Simulink  
Malaysian Shipyards  
Deep-Sea Trawler



RAGBI : Kejuaraan  
Berterusan



# Ahoy!

BULETIN UniKL MIMET

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**M**IMET Ahoy! Selamat bertemu pada keluaran ulung Buletin UniKL MIMET. Nama yang dipilih mungkin agak ganjil, namun ia adalah panggilan yang sering dibuat untuk menarik perhatian pelaut-pelaut terutamanya yang berada di atas bot. Secara kebetulan, setelah nama ini dipilih pada 29 Julai lalu, ia seakan-akan menarik tumpuan warga MIMET dan sumbangan artikel yang pada mulanya seakan-akan sukar untuk disempurnakan mula sampai mencurah-curah ke meja Ketua Editor. Untuk makluman semua, MIMET Ahoy! akan menemui anda setiap suku tahun secara bercetak dan elektronik. Sehubungan itu, sidang redaksi amat mengalu-alukan apa jua sumbangan daripada anda untuk dikongsi bersama seluruh warga UniKL MIMET.

*Thank you for helping the editorial board realised the inaugural issue of MIMET Ahoy! It has been quite an intricate task to translate the wisdom of our honourable Head of Campus into the hard and soft copies that are currently in circulation. Thanks Allah for allowing our efforts to succeed. We at the editorial board nevertheless, recognised that the bigger challenge is to ensure the bulletin continues to be published as schedule. This task will not come easy without the support for everyone at MIMET. Hence, consistent with the academic tradition of "Publish or Perish", it is hoped that MIMET Ahoy! will be chosen as an avenue by staff and students alike to sharpen their writing skills before they venture into more reputable publications.*

**AMIN AROF**

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## ACKNOWLEDGEMENT

**THE EDITORIAL COMMITTEE WOULD LIKE TO THANK MIMET PHOTOMEDIA CLUB (MIPHOM) FOR ALLOWING SOME OF THEIR PHOTO COLLECTIONS TO BE INCLUDED IN OUR FIRST EDITION. JAZAKALLAH.**

## DARI MEJA DEKAN/KETUA KAMPUS

*Assalamualaikum Warahmatullahi Wabarakatuh*

Terlebih dahulu saya mengucapkan ribuan terima kasih kerana diberi peluang menulis kata-kata aluan untuk **MIMET Ahoy!** ini. Tahniah dan Syabas saya ucapkan kepada seluruh keluarga Redaksi **MIMET Ahoy!**. Berkat kegigihan mereka dan dengan dikemudikan oleh Kdr (B) Aminuddin Md. Arof, kita berjaya menerbitkan keluaran sulung nadi komunikasi di antara seluruh keluarga MIMET. Keluarga besar kita termasuklah para pelajar, petugas akademik dan bukan akademik serta juga lulusan kita (alumni) yang mendapat diploma/ijazah dari UniKL MIMET.

Mulai sekarang kita ada satu lagi saluran komunikasi di antara sesama kita , iaitu Buletin **MIMET Ahoy!**, selain daripada e-mel, Skype, papan notis, pertemuan bulanan, mesyuarat dan lain-lain. Dapat kita paparkan kegiatan kakitangan dan mahasiswa/i serta graduan kita dalam **MIMET Ahoy!** Tiap Jabatan, sama ada pengurusan atau akademik, perlu ada pelapor atau penulis sendiri yang akan menulis untuk penerbitan ini. Dengan cara ini segala maklumat yang diperolehi dan dicetak dapat disebarluaskan untuk bacaan semua. Inilah satu cara menguruskan maklumat supaya apa yang disampaikan itu sahih dan betul dan boleh menghapuskan budaya cerita-cerita atau khabar angin.

Bagi yang ingin mengasahkan bakat, menyebarkan ilmu dan kepakaran dan menguji keberkesanan penyampaian sebagai karyawan, kita bolehlah menghantar sumbangan kita dalam bentuk esei, rencana, puisi, cerpen dan lain-lain untuk dikongsi bersama. Saya sendiri, InsyaAllah akan menulis dalam satu ruangan khas bagi setiap keluaran. Saya ingin mencadangkan kita dapat menerbitkan Buletin ini dua bulan sekali. Saya percaya dengan sokongan dan bantuan para penulis kita di kalangan pelajar atau petugas tentu dapat kita penuhkan ruangan nadi komunikasi kita ini bagi tiap keluaran.



Untuk keluaran ini, saya ingin meminta semua warga MIMET mengingati dan memperbaharui kembali janji-janji kita dengan diri kita sendiri, dengan ahli keluarga kita (termasuk ibu bapa), dengan Allah S.W.T dan Tuhan kita, dengan bangsa, agama dan negara kita. Janji ini kita buat semasa berikrar pada Minggu Silaturahim (jika kita pelajar) dan semasa menandatangani AKUJANJI (sebagai kakitangan) semasa kita masuk dahulu. Buat keazaman baru untuk mengkotakan janji-janji itu untuk kebaikan kita semua dan Universiti kita.

Jika setiap dari kita berazam bertugas dan mengubah sikap kita kepada yang unggul dan terbaik, maka sudah tentu organisasi kita ini akan menjadi terbaik di antara semua kampus-kampus dalam UniKL ini. Itulah harapan kita semua. Jangan kita terlalu gusar dengan kerja-kerja atau tugas orang lain. Tumpukan perhatian penuh kepada tugas kita sahaja. Marilah kita bertekad bergerak ke arah itu.

**“ SELAMAT MENCAPAI  
KEUNGGULAN ”**

Prof Dato' Dr Mohd Mansor Salleh  
Dekan / Ketua Kampus  
UniKL MIMET

# VICTORIOUS MIMET!

By: Rowena Rahman

**K**udos! The recent SSUK 2009 which was held on the 19<sup>th</sup> – 22<sup>nd</sup> May hosted by UniKL MSI was a huge success for MIMET. Emerging as the CHAMPION, defeating all other campuses was an unquestionable result of how excellent our staff athletes are. Taking home 4 Golds, 3 Silvers, 1 Bronze and abundance of team spirit as our pride for this year, has captured the attention of one of the Senior Managers from Chancellery. “I am amazed by the team spirit of MIMET!! You can tell them I said so!” was a piece of SMS sent by her to our honourable Dean. Dato’ Mansor himself was astonished by our team spirit and had defined it as fantastic.

Congratulations to our gold medallists whom were Badminton players (En. Shuib & En. Shahril), Ping Pong players (Ustaz Zikro & En. Zawawi), Sepak Takraw team (En Shahrin, En. Anas & En. Daud) and Bowling Players (Cik Yus & Puan Ayu), our Silver medallists: Volleyball (Women) team, Badminton team and Bowling (Women) team and our bronze medallist : Ping Pong team for their thriving performance. MIMET’s conquest of SSUK 2009 were followed by MIAT as the 1<sup>st</sup> runner up and MICET as the 2<sup>nd</sup> runner up.

After all the efforts, hard work, sweat and tears, all the evening after-work consistent trainings and injuries, it is all worthwhile. Congratulations again to all our athletes for the tremendous job and thank to others who have done their parts (minor or major), being supportive, high-spirited, full of joie de vivre and encouraging for this event. For those who did not manage to get the gold medal and still echoing in their minds, there is always next year and more coming years to achieve them. All the best!



**“KEEP UP THE GOOD WORK AND THE SPIRIT OF MIMET! WE WILL BE THERE AT THE TOP ALWAYS!”**

(Prof Dato’ Dr Mohd Mansor Salleh, 2009)



# Karnival Sukan UniKL

SUFIAN YAHAYA

Dari 23 hingga 26 Jun 2009, UniKL MIMET telah menganjurkan Karnival Sukan UniKL 2009 yang disertai oleh sembilan buah kampus. Keseluruhan kontinjen mengandungi seramai 1287 peserta. Pada karnival kali ini, sebanyak 13 acara telah dipertandingkan termasuk bolasepak, badminton, bola tampar, tenis, ping pong, dart, bola keranjang, boling dan ragbi.

Karnival ini telah dirasmikan oleh Timbalan Presiden UniKL (HEM dan Teknoputra), Prof. Dr Abu Talib Bin Othman. Pada karnival ini, turut berlangsung Fiesta Sukan di mana tempat jualan disediakan bagi memeriahkan lagi suasana. Acara selingan seperti *paint ball* dan jelajah sambil menaiki bot turut diadakan. Acara selingan ini menjadi tarikan dan tumpuan bukan sahaja di kalangan peserta karnival sukan, malahan pengunjung dari luar.

Pada karnival kali ini, johan keseluruhan dimenangi oleh UniKL BMI diikuti oleh UniKL MIAT dan UniKL MFI. UniKL MIMET berada pada kedudukan keempat yang merupakan pencapaian terbaik UniKL MIMET sejak menyertai Karnival Sukan ini. Pencapaian ini adalah hasil kerja keras para atlit dan pengurus sukan yang telah menjalankan latihan pusat seawal dua minggu sebelum kejohanan. Selain itu semangat tuan rumah juga menjadi kunci kejayaan. Pada karnival ini, acara dart dan ragbi telah menyumbangkan pingat emas. Pingat perak disumbang oleh bolasepak, tenis dan dart manakala gangsa disumbang oleh sepaktakraw, badminton dan bola keranjang.



Dalam penganjuran karnival sukan kali ini, UniKL MIMET boleh berbangga kerana aturcara telah berlangsung dengan baik, selamat dan lancar. Jentera penggerak karnival ini telah diberisi oleh staf dan para pelajar yang tekun dan berdedikasi dengan bantuan para pelajar yang telah berkhidmat sebagai sukarelawan semasa pertandingan dianjurkan. SYABAS kepada semua yang terlibat.



**“.....atucara telah berlangsung dengan baik, selamat dan lancar.”**



# Ship Manoeuvring Simulation using MATLAB Simulink

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**Abstract:** Apart from full scale tests and free running model tests the manoeuvring performance of a ship can be judged using computer simulation. It is a very powerful tool because a wide range of real manoeuvres can be predicted at a very low rate of costs. One of the simulation software available is the MATLAB Simulink.

**Keywords:** Manoeuvring, Simulation, Software

## 1.0 Introduction

A ship manoeuvring model can be created mathematically using Simulink, where it provides a graphical user interface (GUI) for building models as block diagrams. Simulink provides a comprehensive block library of sinks, sources, linear and nonlinear components, and connectors. This could be useful in the initial stage, where the set up of a free running model tests could be quite expensive at the initial design stage.

## 2.0 Manoeuvring Model Development in Simulink.

In developing a dynamic model for a ship, one has to incorporate associate models such as the rudder and propeller. This can be idealized by visualizing in simple blocks as shown in figure 2.1.

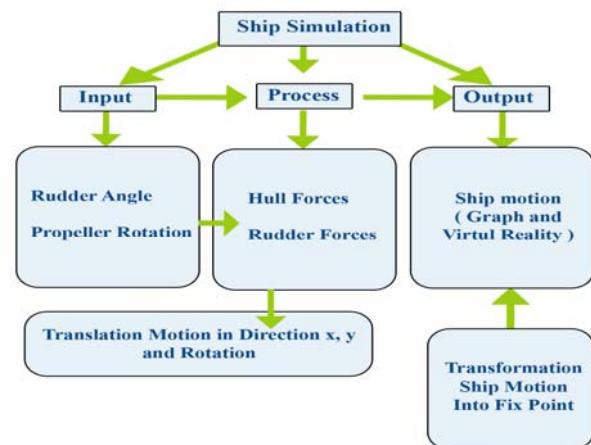


Figure 2.1: Ship Simulation Block Diagram

It starts with the input or the source which will be the rudder angle and the propeller. The process of the ship simulation is where the hull force, rudder force and propeller force integrate into each other and all these forces are in the forms of equations as shown in equations 2.1 – 2.6.

$$X_R = -(1 - t_R) F_N \sin \delta \quad (2.1)$$

$$Y_R = -(1 + a_H) F_N \cos \delta \quad (2.2)$$

$$N_R = -(x_R + a_H x_H) F_N \cos \delta \quad (2.3)$$

$$F'_N = (A_R / Ld) C_N U_R^2 \sin \alpha_R \quad (2.4)$$

$$F'_N = \frac{F_N}{0.5 \rho Ld} \quad (2.5)$$

$$F_N = 0.5 \rho A_R C_N U_R^2 \sin \alpha_R \quad (2.6)$$

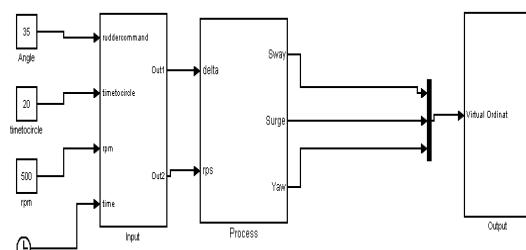


Figure 2.2: Ship Simulator Main Block created in Simulink.

The mathematical model is also based on the equation of motion (surge, sway, and yaw) as shown in equation 2.7. The block model system starts with three simple block sets as shown in figure 2.2, with its input, process and output.

$$\dot{x}_{OG}(t) = u(t) \cos \psi - [v(t) + x_G r(t)] \sin \psi(t),$$

$$\dot{y}_{OG}(t) = u(t) \sin \psi(t) + [v(t) + x_G r(t)] \cos \psi(t)$$

$$\dot{\psi}(t) = r(t)$$

### 3.0 Input Data

The example of the input required for this simulation is shown in table 3.1. The simulation requires the integration of ship's data and hydrodynamic coefficients obtained from model captive test using Planar Motion Mechanism (PMM) in towing tank.

Table 3.1: Input Data

SHIP	
Length (m)	116.71
Beam (m)	19.0
Draught (m)	4.75
Block Coef.	0.723
Speed (m/s)	3.6008
RUDDER & PROPELLER	
Prop Diameter	2.67
Rotation (rps)	2.0468
Number of Prop.	2
Propeller Pitch (m)	1.9758
Rudder Area ( $m^2$ )	5.0
Number of Rudder	2

### 4.0 Result

The results obtained using Simulink are shown below. Figure 4.1 is the outcome of a turning circle test and Figure 4.2 is the outcome of a zigzag test. The results can be checked with the IMO Manoeuvring Standards.

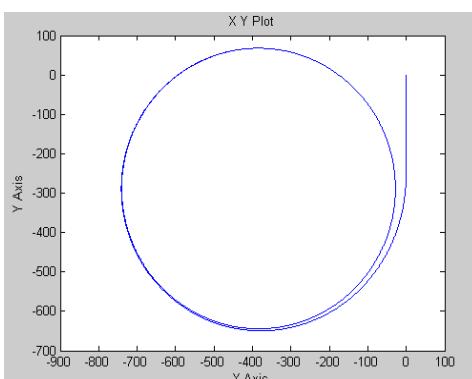


Figure 4.1: Turning Circle Test Simulation

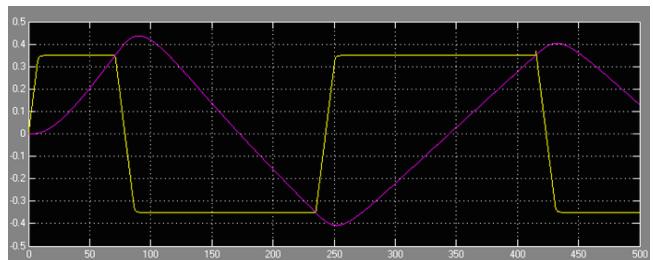


Figure 4.2: Zigzag Test Simulation

### 5.0 Conclusion

As a user, MATLAB and Simulink are essential tools for engineers and scientists in doing analysis. The capability to create graphics outputs makes MATLAB and Simulink powerful analysis tools. Additional benefits from MATLAB especially Simulink are the block sets which are easy to use with manual click-drag operations. For this ship manoeuvring modelling, it could be an important initial design tools for ship design in terms of ship's controllability before the ship is to be put to sea.

### 6.0 References

Gronarz A., Captive Model tests and Manoeuvring Simulation, Ships for Coastal and Inland Waters, Design, Building, Operation, Duisburg 5 – 15 September 1994.

Sicuro D. L. L., Physically Based Modelling and Simulation of a Ship in Open Water 3D Virtual Environment, Master Thesis, Naval Postgraduate School, Monterey, California, September 2003.

## UNDANGAN

**SEMUA STAF DAN PELAJAR Unikl MIMET  
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# MINGGU SILATURRAHIM

HAZWAN HAFIZ

Pada 12 Julai 2009, seramai 255 siswa baru telah mendaftar di UniKL MIMET. Daripada jumlah itu, seramai 142 orang mendapat tempat untuk program Ijazah manakala selebihnya untuk program diploma. Para siswa baru ini diwajibkan untuk mengikuti Minggu Siraturrahim (MSR) yang diuruskan oleh Jabatan Hal Ehwal Mahasiswa(HEM) yang telah dikendalikan oleh Majlis Perwakilan Mahasiswa.

Seramai 26 orang pelajar telah terpilih bagi membantu dalam pengendalian MSR ini. Pada MSR kali ini, pihak HEM telah menggunakan pendekatan baru yang lebih mengutamakan kualiti dan kefahaman kepada para pelajar baru dalam menempuh kehidupan sebagai pelajar UniKL. Sebagai hasilnya, kebanyakan pelajar baru berpuas hati dengan hasil MSR kali ini.

Selain itu, Prof. Dato Dr. Mohd Mansor Bin Salleh selaku Ketua Kampus merangkap Dekan UniKL MIMET telah memberi penuh komitmen dalam menjayakan MSR kali ini. Kehadiran beliau yang berterusan ternyata memberikan suntikan semangat kepada para fasilitator dan peserta dalam mengharungi MSR.

Pada MSR kali ini banyak aktiviti luar telah dianjurkan. Ini memberikan semangat kepada para siswa baru untuk membina azam bagi menjadi pelajar yang cemerlang. Selain itu aktiviti berkumpulan telah memberikan ruang kepada para siswa untuk berkenalan dan seterusnya bekerjasama.



Dalam MSR kali ini dua orang siswa iaitu Mohd Fauzan B Abdullah dan Salmiah Bt Abd Aziz telah dipilih sebagai Peserta MSR terbaik. Mereka telah dianugerahkan trofi atas komitmen dan kerjasama dalam menjayakan MSR kali ini.

Pada majlis penutupan MSR kali ini, turut diadakan majlis penyampaian Anugerah Dekan. Majlis ini juga telah menyuntik semangat para siswa baru untuk tekun berusaha dalam bidang akademik. Akhir sekali, selamat datang diucapkan kepada para siswa baru. Tahniah kerana berjaya menempatkan diri di UniKL MIMET dan selamat maju jaya. **WELCOME ONBOARD**



# Competitiveness and Productivity of Malaysian Shipyards.

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## Abstract

There are many factors determining the productivity and competitiveness of a shipyard. Competitiveness is based on time, cost and quality. The productivity of the project is dependent on the coordination of material, manpower, facilities, capital and information. The total built cost such as materials; labour and overhead presents a significant effect on productivity and competitiveness of the shipyard. To succeed commercially, shipyards must be able to accurately estimate costs. This paper discusses on the factors that can affect competitiveness and productivity of Malaysian shipyards.

## 1. Introduction

The New Oxford Dictionary defines "competitive" as: "as good as or better than others of a comparable nature" and "productivity" as: "the state or quality of producing something". In the context of this paper, productivity can be defined as the complexity is improved only by increasing output or by reducing man hours. This paper will discuss the concept and examines what is actually meant by the words "competitive" and "productivity" in the context of the commercial shipbuilding market.

### 1.1 Shipyards in Malaysia

Shipbuilding industry in Malaysia consists of approximately more than 70 shipyards, with the majority being relatively small sized with capacity of constructing and repairing vessels of not more than 5000 dead weight tonnes (DWT). Small shipyards build mostly wooden and aluminium hull boats or crafts and are mainly located in Sabah and Sarawak. Currently, there are six shipyards with relatively bigger ship building/ship repairing capabilities. These are Malaysia Marine and Heavy Engineering (MMHE), Boustead Naval Shipyard, Sabah Shipyard, Ramunia Shipyard, Sasacom and Muhibbah Marine Engineering. The shipyards have the technology and capability to undertake the construction, repair and refurbishment of various types of ocean-going vessels of steel, aluminium and other materials. Malaysian shipyards have the capability to build vessels up to 30,000 DWT and repair vessels of up to 400,000 DWT.

## 2.0 Competitiveness

The competitiveness of Malaysian shipyards needs to be properly assessed. What is normally meant by the word "competitiveness" is cost competitiveness. In real meaning, this is a measure of the ability to compete against the prevailing market price, although the concept is also used to benchmark shipyards against specific competitor. It must be stressed that it is more important to achieve cost competitiveness than high productivity. In order to ensure survivability in difficult market condition, shipyards must implement a logical strategy to match its facilities and organization structure toward a targeted market sector. There are four factors that influence the competitiveness of shipyards namely:

- (i) Price (iii) Marketing
- (ii) Design (iv) Productivity.

### 2.1 Price

In January 2008, The Star reported that the new shipbuilding prices were expected to jump between 20% and 30% owing to shipyards' capacity constraint. The behaviour of shipbuilding prices in international market is fluctuating and provided significant impact on local prices as well. Prices have now begun to rise again, and costs are rising fast in South Korea, which lead to a gradual increase in base market price offered by shipbuilders around the world.

Any discussion of price without the mention of subsidies would be incomplete. There are a large number of ways by which shipyards can be subsidized. These can be grouped into two categories: direct and indirect. Direct subsidies give money directly to the shipyard to cover operating losses generated by the difference between cost and price. Indirect subsidies either channel funding through third party (most commonly shipowners) or provide tax incentives.

### 2.2 Design

In shipbuilding the design must always fulfil the owner's requirements. Most Malaysian shipyards do not have a proper design department

to produce the required design due to the high cost required. Usually shipyards will buy or sub-contract to local or foreign design houses to provide the required design in order to participate in tender processes. The greatest opportunities for productivity improvement are to be found at the design stage, particularly at the earliest stage of specifying the product or on-board systems. Thus, to be productive it is a necessity to simplify and make it more suitable for production while maintaining or improving the design of the ship based on the shipyard capability.

### 2.3 Marketing

The effectiveness of a marketing campaign is a vital element in competitiveness. Unlike mass product (like cars and electrical appliances), a ship is much more difficult to market and sometimes its success is not necessarily determined by the competitive pricing only but also with some level of political involvement. Marketing tasks must be backed up by the technical and production departments as to ensure that the shipyard is capable of producing the intended ship economically and within the stipulated time. As such, to ensure the shipyard continues to receive orders, two areas must be ensured:

- Shipyard must be able to deliver the product on time, on cost and to quality.
- The marketplace must believe that the shipyard can deliver the product on time, on cost and to quality.

### 2.4 Productivity

As a measurement, productivity is the ratio of output to input, and common parameters are needed as a basis for both of these factors if comparisons are to be made. In shipbuilding, an input is normally measured by man hours or man years, but even here the situation is not straight forward because of differing classifications of direct and indirect workers in different shipyards including different types of sub-contracting regime.

The unit of output used most commonly for comparison between shipyards is the compensated gross ton (CGT). Thus, CGT is a competitive benchmarking tool and has a significant advantage over other measures in particular gross ton or tons of steel produced. The cost element of the competitiveness calculation is quite straight forward. The basis used is normally all labour and overhead costs associated with the running of the shipyard must be included (not including direct material and other direct contract cost). The equation is as follows:

- Productivity is measured by the effort, in term of man hour required to produce an amount of work  

$$= \frac{\text{Man-year}}{\text{Unit output (CGT)}} \dots (i)$$

$$= \frac{\text{Man hours /CGT}}{\text{Average hours worked /year}} \dots (ii)$$
- $\text{Cost} = \frac{\text{Total cost}}{\text{Man-years}} \dots (iii)$
- $\text{Cost competitiveness} = \frac{\text{Productivity} \times \text{Cost}}{\text{Unit output (CGT)}} \dots (iv)$   

$$= \frac{\text{Total Cost}}{\text{Unit output (CGT)}} \dots (v)$$

The above equation gives a measure of cost per unit work produced, and thereby a direct measure of competitiveness.

### 3. Cost Estimate

In practice, during tendering an approximate cost estimate is developed during initial discussions with a potential customer. This estimate is refined as discussions progress and the customer's requirements are defined in detail. The refined requirements result in higher level of technical details (e.g., concept design, preliminary design, contract design, and a specification in detail), which enable increased accuracy of the cost estimate. Lack of information and communication among departments, unclear define process, incompatible design tools or software, not capable of being tailored to the needs of the shipyards are factors that can be frustrating for the shipyard to be competitive in the beginning.

Cost estimates are normally developed from different approaches either micro or macro analyses. The macro cost estimate (cost down, historical analysis) is easier to apply and can provide earlier results. However, it is not effective in improving productivity.

### 4. Reasons for Lack of Shipbuilding Competitiveness in Malaysian shipyards

Besides the main factors highlighted earlier, other elements that affect the competitiveness are listed below :

1. Not capable to design, drafting, production engineering and lofting.
2. Insufficient information during cost estimation and planning.
3. Limited capacity.
4. Limited local support industry.
5. Fluctuation of material and equipment cost.
6. Not able to complete on time; poor track record.
7. Lack of financial support.
8. Local shipowners.

### 5. Reasons for Lack of Shipbuilding Productivity in Malaysian shipyards

1. Shipyard layout.
2. Level of technology.
3. Construction method.
4. Dimensional and quality control.
5. Lack of effective ship production management.
6. Lack of management, supervision, skill and training.

## **6. Recommended areas to target in order to increase competitiveness**

**Incentives** – If Malaysian government wants to assist the shipbuilding industry, it should offer real meaningful incentives for productivity improvement and create the policy to protect the industry.

**Shipbuilding policy and business plan** – Shipyards need to develop target for cost and a pricing policy. A shipbuilding policy should address facilities development, productivity targets, ship definition strategy, production organization and methods, planning and contract procedures, and make procurement or sub-contract policies.

**Marketing** – The marketing department must have good information and market analysis on local or overseas potential markets from various shipowners. Most yards became successful by developing better market knowledge, identifying necessary core competencies, assessing the real strength of the key competitors and building solution to the shipowners.

**Design and engineering** - It is strongly recommended that Malaysian shipyards have their own design and engineering departments sufficient to fulfil their needs and future development. If the design does not include "Design for Production" and take account of yard's facilities and production methods, shipbuilding will be a great deal more costly and time consuming.

**Total quality management (TQM) and accuracy control** – Malaysian shipyards to implement TQM principles and to adopt accuracy control procedures. TQM has proven to be a requirement in any manufacturing systems that require input from all levels of the organization in order to continuously improve productivity.

**Material management and purchasing** - Shipyards need to employ Just-In-Time approaches to material management.

### **DO YOU KNOW.....**

WHO IS YOUR PROGRAMME COORDINATOR (PC)? IF NOT, HERE IS THE LIST:

BET NASB EN IWAN ZAMIL  
DET DSD EN MAZLAN MUSLIM  
DET DSC EN AZMAN ISMAIL  
DET DME LT CDR (R ) KHAIRIL JAFUAN  
DET DMEE CDR (R)MHD ASLAN YAHYA  
BMO PN SITI NOOR KAMARIAH

## **7. Recommended areas to target in order to increase productivity**

**Shipbuilding methods** – implementation of modular concept and utilizing the advance outfitting zone can reduce construction time. Innovative approaches to project design, engineering and management are required if modular concept is to be an effective production concept.

**Technology and equipment** – improving system of production process and work flow at the yards. For example, welding process which needs special attention in shipbuilding.

**Research and development** – investment in research and development will give us the technological edge in the future. Malaysian shipyards are not supposed to continuously depend on foreign technology transfer that will lead the yards to be followers and remain non-competitive and productive.

**Education and training** - training of skills in various disciplines must be continuously implemented. These training and education will contribute a great deal to the shipbuilding and ship repair industry.

## **8. Conclusion**

In order to take advantage of the potential for shipbuilding demand, there is a need for a gradual process of development to make Malaysia an international competitive shipbuilder or at least a regional centre of marine industry excellence.

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# BRAVO TO DEAN'S LIST WINNERS

By: Mohd Hanis @ Mohd Fadhil b Mohd Nor

Since the establishment of UnikL MIMET in 2004, the institute has continued to produce excellent students that achieved a CGPA of 3.5 and beyond. In maintaining with the tradition of excellence, a Dean's List award giving ceremony was held on 17<sup>th</sup> July 2009 at Khatulistiwa Hall. A total of 152 students received their well deserved commendations. From that figure, 26 students were awarded with tokens of appreciation and RM100 each for successfully maintaining their Dean's List achievements for three consecutive semesters. The 26 shining stars are listed below:

PROG-RAMME	NAME
DMEE	NOOR SHAHIRAH BINTI OTHMAN
	NOR AZARINA BINTI HASHIM
DSC	HAIRUL AZMI BIN MOHAMED
	LUQMAN HAQIM BIN ZULKIFLEE
	MOHD ALIF SAIFUDDIN BIN JAMALLUDIN
	MOHD AZWAN BIN ISHAK
	MOHD FAUZAN B. ABDUL SUKOR
	MOHD NURHARRIZ BIN MOHD RAZDI
	MUHAMAD FARIZUL BIN ABU BAKAR
	MUHAMAD RIZUAN BIN MOHAMED ARIFIN
	FATIN AINAA BINTI ROSLY
	FAHRULRAZI BIN MOHAMAD
	FIRDAUS TASNIM BINTI CHE PA
	IKHWAN SHAFIQ BIN ZAINAL ABDIN
	ZAINAL ABIDIN BIN KARIM



BNS	JOE-NA THEAN CHEE YEE
	NURUL IDA SUHANA BINTI LIAS
DSD	ABDUL MU'IZ BIN MAZLAN
	FARAH AMANI BINTI BASHARUDDIN
	MOHAMMAD MUZZAMMIL BIN ZAINUDIN
	MOHD ZUFAIQ BIN MOHAMED ZUBIR
	MUHAMAD SHAFIMI BIN SHAHIDAN
	MUHAMMAD AIMAN BIN NASRUDDIN
	ZIYAD BIN NORDIN
	NURSYUHADA BINTI RAZALI
	MUHAMMAD SUFRI BIN SHAMSUDDIN

Congratulations to all Dean's List Award winners. It is hoped that the recognition awarded by the institute will continue to spur the spirit of the recipients and encourage the non-recipients to join the elite club.



# REVOLUSI PEMIKIRAN

## Indahnya Sebuah Kesatuan.

M.H. Fadhil

Rasa gembira dan syukur apabila menggerakkan jemari dalam mengalunkan coretan ini bukanlah kepalang. Namun peluang yang ada membuatkan saya merasakan kudrat yang berganda. Saban hari saya memikirkan idea dan ilham yang berfaedah untuk disampaikan kepada pembaca yang budiman. Namun entah kenapa ilham ini sukar sekali untuk muncul agar boleh dikongsikan sesama isi UniKL MIMET ini.

Namun di akhir waktu, buah pemikiran dan isinya membenak di dalam kepala saya. Kesatuan sosial, ya itulah frasa yang paling tepat untuk saya gambarkan mengenai tulisan kali ini. Benar, sebagai makhluk yang empunya akal dan pertimbangan yang rasional kita perlu berinteraksi dalam membina suatu sistem dan komuniti. Malah di samping melalui persamaan dalam pendekatan, suatu sistem dan komuniti juga boleh terbentuk melalui perbezaan.

Melalui interaksi dalam apa juu kaedah, manusia mulai merasakan kedekatan di antara suatu jiwa ke suatu jiwa yang lain. Perbezaan yang sebelum ini membekukan hati nurani mulai luluh apabila menuturkan kata-kata. Sebagai muslim juga adalah contoh yang sangat baik apabila kita diajarkan untuk memberi salam dan mensedekahkan senyuman di antara satu sama lain.

Mari kita terus mengunjurkan bicara ini dalam kacamata islam yang lebih mendalam. Ternyata apabila membelek helain-helain penulisan agama yang agung ini, kita tidak lari daripada membaca tentang argumentasi dan maklumat tidak kira dengan jejak sejarahnya mahupun falsafah mengenai kesatuan sesama manusia lebih-lebih lagi sesama muslim.

Bila membelek kisah mengenai perintah hijrah kepada nabi s.a.w., pasti itu tidak lain jika bukan mengenai kesatuan di antara kaum muhajirin dan ansar. Bukan itu sahaja, malah dalam kisah bagaimana batu hajarul aswad diletakkan ke dinding kaabah juga, aspek kesatuan masih dipegang sebagai pengajaran utama.

Melalui firman Allah yang bermaksud “*Sesungguhnya Allah menyukai orang yang berperang di jalanNya dalam barisan yang teratur seakan-akan mereka seperti suatu bangunan yang tersusun kukuh.*” (Surah As-Saff:4), jelas sekali menyatakan akan kepentingan untuk tidak bertelagah dan bersatu sesama muslim dalam menjalani perjuangan yang hebat iaitu kehidupan seharian ini sendiri.

Jadi marilah kita sebagai komponen yang membentuk MIMET ini, mengambil inisiatif untuk menyusun saf yang lebih kukuh dalam mengharungi cabaran yang mendarat. Di akhir bicara saya ingin sekali mengucapkan salam serta selamat datang kepada seluruh pelajar baru UniKL MIMET sesi Julai 2009. Diharapkan seluruh jiwa yang segar ini akan dapat bersatu dan menyesuaikan diri dalam komuniti UniKL MIMET yang masih baru ini.

Pergunakanlah segala kudrat dan akal yang baik itu untuk terus menyumbang kepada institusi yang tercinta ini. Bagi saya, setiap jiwa yang ada adalah pelengkap kepada intitusi yang semakin berkembang ini. Di akhir coretan ini saya mengakui akan segala keburukan adalah datang dari diri saya sendiri dan pasti segala kebaikan adalah dari Allah yang Maha berkuasa. Wallah hualam.

**“*Sesungguhnya Allah menyukai orang yang berperang di jalanNya dalam barisan yang teratur seakan-akan mereka seperti suatu bangunan yang tersusun kukuh.*”**

(Surah As-Saff:4)

# MODEL-SHIP CORRELATION STUDY FOR DEEP-SEA TRAWLER

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## **ABSTRACT**

A case study of model-ship correlation on Malaysian trawler was carried out. Statistical-theoretical method had been incorporated in the research comparing the results from model tests prediction. Full-scale tests were performed in this research comparing the powering prediction from model tests using the extrapolation methods. At the end of each test (model tests and full-scale test), uncertainty analysis was carried out to assess the accuracy and errors in each test.

## INTRODUCTION

The task of a naval architect is to ensure that, within the limits of other design requirements, the hull form and propulsion arrangement will be the most efficient in the hydrodynamic sense. The ultimate test is that the ship shall perform at the required speed with the minimum of shaft power, and the problem is to attain the best combination of low resistance and high propulsive efficiency. In general this can only be attained by a proper matching of hull and propeller. The basic contractual obligation laid on the shipbuilder is that the ship shall achieve a certain speed with a specified power in good weather on trial, and for this reason smooth-water performance is of great importance. Model tests are normally accepted as the superior method in predicting the actual powering requirement for new ship designs. They are relied upon to confirm predictions made in the design stages. However, methods of extrapolating the data obtained from model test to full-scale ship play an important role in the determination of the accuracy of the prediction. A number of such methods are currently being used by various towing tanks all over the world, but the suitability of the extrapolation methods and the correction factors on different towing tanks need to be investigated.

## OBJECTIVES

The objectives of the research study are as follows:

- To identify the most suitable statistical-theoretical method for Malaysian fishing boat powering prediction;
  - To compare the powering prediction from extrapolation with full-scale test measurement.

## METHODOLOGY

Literature review is conducted from various learned sources and a 28.3 m trawler was utilized in the research. Statistical-theoretical method, model test and sea trials were performed on the vessel. Correlation analysis was conducted to determine the accuracy of the results from various methods employed. Finally the calculation for model-ship correlation was performed to determine the results of vessel resistance and powering.

## CONCLUSION

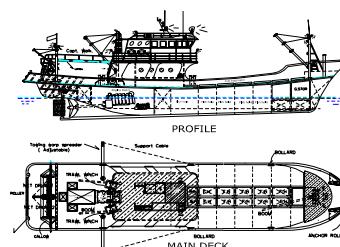
Statistical-theoretical method using the Holtrop and Mennen, Compton, Van Oortmerssen, Todd Series 60 and Fung methods had been utilized in the research study. Generally it was found that model tests conducted at the UTM Marine Technology Laboratory were accurate based on the ITTC standard. In this research, nevertheless it is mostly suspected that most errors occurred in the full-scale were due largely to environmental factors such as wind, wave and current at waters in the vicinity of Kuantan.

## **RECOMMENDATIONS**

For future model-ship correlation work, it is recommended that attention should be given in determining and quantifying the errors of the equipment used, especially in full-scale test. Standard procedures of full-scale tests and trials should be followed and continuous data logging/storing system of all parameters should be used for future full scale tests. Onshore speed measurement system in conjunction with DGPS (Digital Global Positioning System) can be used to obtain more accurate measurement of vessel speed during the full-scale tests.



### *Model Test at 1.63 m/s (11 knots) at UTM Towing Tank*



### *General Arrangement of 28.3m Trawler*

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