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MAKLUMAT INDUSTRI DAN SAINS

INFORMATION SERVICE FOR COMMERCE & INDUSTRY

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MAKLUMAT PERDAGANGAN DAN PERNIAGAAN/ TRADE AND COMMERCIAL INFORMATION

THE NEW SAFE LATEX

Vystar Corporation announced that Revertex Malaysia has signed a letter of intent to produce Vytex, the new safe latex. Vytex natural rubber latex represents a dramatic breakthrough in the search for a natural rubber latex in which the antigenic proteins that trigger allergic reactions are deactivated without reducing elasticity. Vytex natural rubber latex is produced through a proprietary process that deactivates antigenic proteins in latex, potentially making it safe for use by most people who are allergenic-protein sensitive, the Atlanta-based company said. According to Vystar President William Doyle, the plan is to scale up to production of Vytex natural rubber latex by next year. This would mean that products made of the revolutionary all-natural rubber latex could be reaching the market in 2007. The implication is that healthcare providers and individuals who have avoided natural rubber latex products due to fear of allergic reactions will now have a safe choice with all of the favorable characteristic of latex, sources were quoted.

MAKLUMAT PENGELUARAN / PRODUCT INFORMATION

USM INTELLECTUAL PROPERTIES

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Kompleks EUREKA, 11800 USM

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En. Azizi Ibrahim (04-6583655 ext. 212)

Or e-mail your enquiries to:

info@usainsgroup.com, hamidwahab@usainsgroup.com, azizi@usainsgroup.com

MANUFACTURING / CONSTRUCTION		
No.	Title	Notes
1.	Angular Equal Channel Pressing Approach to Produce Copper Electrode Tips for Spot Welding Application	Machined and ultrafine nano fibrous copper composites tips for spot welding
2.	Artificial Agro-Lumber	New wood lumber derived from oil palm trunks and a thermosetting polymer.
3.	Membrane Fabrication Machine	Currently a lab-scale machine for auto-casting and fabrication of defect-free ultra-thin membranes
4.	Biodegradable protein film for packaging	Modifications made to conventional protein films confer qualities that enhance their use in many new areas
5.	Catalyst Filter Against Motorbike Combustion Pollution	3-way catalytic convertor for motorcycle emission
6.	CHITEC	Carbohydrate-based absorbent for residual oil from vegetable oil processing and manufacturing waste water.

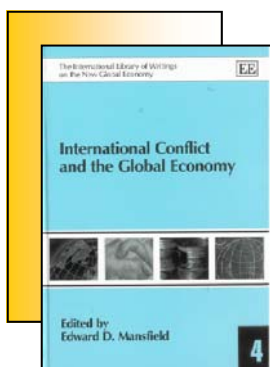
7.	DeCrossCHEM	Process and chemicals for recycling rubber products into interlocking rubber tiles/ blocks
8.	Design of Compact Modular Boat	2-man foldable PP constructed boat
9.	DURAGLAS	Novel glass derived from wood ash (principally durian & rambutan) and sand
10.	Elimination of VOCs from Contaminated Air Using Active Biofilters	Microbes immobilized on a ligno-cellulosic film can oxidize volatile organic compounds in an air stream
11.	FlexiTech Ceramic	Revolutionary technology for fabrication of ceramic products
12.	FSP-CLEARGLUE Fire Safe Polymeric Adhesive	Nonflammable adhesive for glass, capable of unbonding & rebonding
13.	Leadframe Stamping Defect Detector	Computerised visual inspection system for stamping defects in moving leadframes
14.	A Novel Electroless Plating Technique	Electroless plating has been extended to formerly unplatable materials and substrates with this new technology
15.	Pallets from Recycled Plastic & Waste Natural Fibers	Replacement made from recycled and waste materials for current timber pallets
16.	PORTAFOAM	Portable foam generator and proprietary chemicals for the production of lightweight foam concrete
17.	RubberFloc™	Novel water soluble rubber derivatives
18.	Smart Portable Co Forecaster	Warning system for impending CO build-up to toxic levels in any environment
19.	Terragrow	A formulation for natural plant growth that is derived from natural sources and is excellent for agricultural crops & ornamental plants
20.	WALLPro	A load reducing geocomposite from scrap tyres for retaining structures esp. under hydrostatic pressure
21.	Water-Based Epoxy Foam	Environment friendly water -based technology for foam production

OIL PALM		
No.	Title	Notes
1.	Automated Oil-Palm Grading Using Machine Vision Technology	Computerised inspection system for oil palm fruit quality
2.	Biosweet from Biowaste	Xylitol is extracted from oil palm empty fruit bunches
3.	Clean Technology for the Production of Cellulose & Cellulose Acetate from Oil Palm Residues	Chlorine-free extraction of cellulose from empty fruit bunches and acetylation to produce cellulose acetate
4.	Integrated Neuro-Based Predictor to Control Palm Oil Mill Emissions	A tool based on an artificial neural network and genetic algorithm gathers data to predict emission levels
5.	A Novel Process Based on Membrane Technology for Treatment of Palm Oil Mill Effluent (POME)	Ultrafiltration and reverse osmosis are key steps in this technology for POME treatment
6.	POFA	Novel multifunctional rubber additive derived from palm oil fatty acids
7.	Production of Bio-ethanol from Palm Oil Solid Wastes	Acid hydrolysis is used to extract fermentable sugars which are then subjected to continuous fermentation to produce ethanol
8.	Liquid PHA (Polyhydroxyalkanoate) from Palm Oil	The <i>Pseudomonas</i> species USM 4-55 converts palm oil into a liquid PHA which can be used in a blend with other brittle plastics with distinct advantages
9.	Transparent Soap from Palm Oil	Formulations to create honey coloured soaps from palm oil derived fatty acids.

ICT		
No.	Title	Notes
1.	ACEL Neural Net Toolbox	Interactive software tools for simulation and training of neural networks
2.	Computer Controlled Two-Axes Solar Tracking System	Accessory for solar energy e.g. photovoltaic systems that depends on tracking the Sun.

3.	gREMDirex - Grid Resource Monitoring and Distributed Remote Execution	Technology to link remote computers to perform a specific task
4.	I ² Screen (An Intelligent Imagery Search and Retrieval Engine)	Integrated fuzzy logic image search engine that searches by image rather than text
5.	iNetMon	A superior network monitoring tool
6.	Methods and System for Accelerated Learning in Neural Networks	Technology that improves and accelerates neural network training
7.	Multi-Point IP-Based Video Conferencing System (MCS V5)	Video conferencing with audio/video streaming, document sharing, and text chatting capabilities
8.	NIDS (Network Intrusion Detection System)	Protects an organization against IT security breaches
9.	Starfruit Rapid Inspection System (STARIS)	The STARS electronic eye does a colour and shape analysis based upon FAMA standards within 3 milliseconds.

ULASAN BUKU/ BOOK REVIEWS



INTERNATIONAL conflict and the global economy.

Mansfield, Edward D, ed. Cheltenham, UK: Edward Elgar Publishing, 2004.
(HF1359.I62 2004)

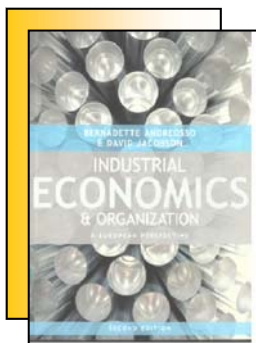
The relationship between the global economy and national security has been an enduring source of interest and debate. This volume contains a set of pioneering studies that paved the way for contemporary work on the political economy of national security as well as some more recent contributions to this literature. These papers address the influence of international economic relations on political conflict, the use and effectiveness of economic statecraft, and the effects of national security concerns on foreign economic relations. The articles contained in this volume will chart a path for research on these topics for years to come.



COST management: a strategic emphasis.

Blocher, Edward J. *et al.* 3rd ed. Boston:
McGraw-Hill/Irwin, 2005.
(HF5686.C8B651 2005)

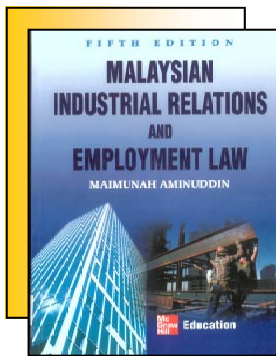
Cost Management: A Strategic Emphasis is the first cost accounting text to offer integrated coverage of strategic management topics in cost accounting. The text is written to help students understand more about management and the role of cost management in helping a firm or organization to succeed. This text aims to teach management concepts and methods, and how managers use cost management information to make better decisions and improve their company's competitiveness. In teaching these key management skills, the text takes on a strategic focus. It uncovers issues such as: How does a firm compete? What type of cost management information is needed for a firm to succeed? How does the management accountant develop and present this information? This text helps students learn why, when, and how cost information is used to make effective decisions that lead a firm to success.



INDUSTRIAL economics & organization: a European perspective

Andreosso-O'Callaghan, Bernadette & Jacobson, David. 2nd ed. London:McGraw-Hill Education, 2005.
(HD2844.A559 2005)

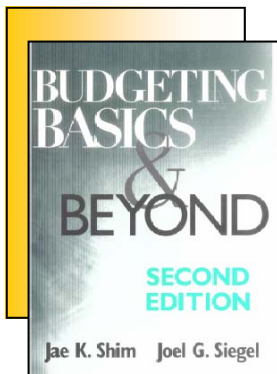
The second edition of Industrial Economics and Organization: a European Perspective provides an authoritative account of both traditional and current theories in industrial economics. Integrating new material on recent theoretical developments, as well as recent political and economic changes, it draws on European examples to illustrate key concepts to the reader.



MALAYSIAN industrial relation and employment law.

Maimunah Aminuddin. 5th ed. Kuala Lumpur:
McGraw-Hill, 2006.
(HD8700.6.M554 2006)

This book presents the role of the Malaysian government in industrial relations, trade unions, trade disputes, the Industrial Court, and industrial action. Safety and health issues have been included in this edition and the material on the requirements of the various employment laws has been extended and expanded. Concepts are illuminated with cases, examples and relevant statistics. It also provides an updated and thorough coverage on a subject of importance to students of human resource management, trade union leaders, managers of small firms and workers themselves. The Malaysian system of industrial relations and employment law is described in detail to ensure readers understand these keys areas of concern which affects the well-being of everyone in society today.

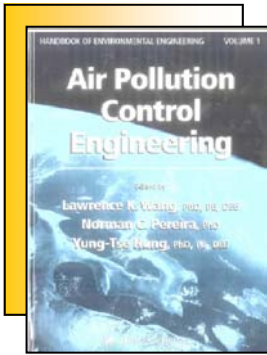


Budgeting Basics & Beyond

Jae K. Shim, Joel G. Siegel. 2nd ed. Hoboken, N.J.:
J. Wiley & Sons, 2005
(HG4028.B8S556 2005)

Budgeting Basics & Beyond is a go-to reference for every budgeting issue, including helpful material on such topics as:

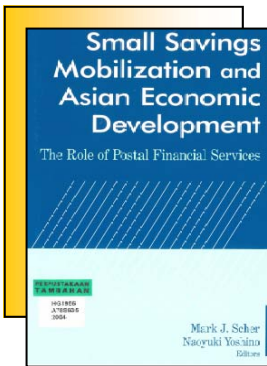
- Techniques for preparing more accurate, realistic, and reliable estimates
- Control and variance analysis devices that signal revenue, cost, and operations thresholds
- Pricing guidelines for products and services
- Planning and scheduling production and related costs
- Profit planning and identifying looming problems
- Financial models that show the relationship among all facets of the business
- Spreadsheet applications for planning, budgeting, and control purposes
- Implication of active financial planning software
- Sales and financial forecasting methodology



HANDBOOK of environmental engineering: air pollution control engineering.

Wang, Lawrence K., Pereira, Norman C., Hung, Yung-Tse, eds. Totowa, N.J.: Humana Press, 2005.
(TD170.H236 2005)

This book expounds the performance, potential, and limitations of the major control processes, including fabric filtration, cyclones, electrostatic precipitation, wet and dry scrubbing, and condensation – as a basis for intelligent planning and realization of abatement systems. Additional chapters critically examine flare processes, thermal oxidation, catalytic oxidation, gas-phase activated carbon adsorption, and gas-phase biofiltration. The contributors also detail the Best Available Technologies (BAT) for air pollution control and provide cost data, examples, theoretical explanations, and engineering methods for the design, installation, and operation of air pollution process equipment.



Small Savings Mobilization and Asian Economic Development: the role of postal financial services

Mark J. Scher, Naoyuki Yoshino. Armonk, N.Y.: M.E. Sharpe, 2004.
(HG1956.A78S635 2004)

This book presents original, first-hand data and analysis in the context of the challenges and current global trends and practices in the household and personal savings and payment markets (postal giro and checking). Based upon first-hand observations in Asia, Europe, and Africa, the study analyzes field research in fifteen Asian developing countries on postal savings, on how domestic financial resources are mobilized to aid national and local development. Through ten individual country case studies, each country's author describes in detail, from their own national perspective their country's past experiences, current issues, and expectations for the future. The book also offers policy recommendations for more effective utilization of the postal infrastructure in the delivery of financial services and examines policy issues that have well informed postal savings practices, as well as those policies that have challenged savings operations, such as market liberalization and

MAKLUMAT PENYELIDIKAN DARI USM/ RESEARCH INFORMATION FROM USM

DETERMINANTS OF MALAYSIAN HOUSEHOLD EXPENDITURES ON FRESH FISH, SHELLFISH, AND PROCESSED FISH

Andrew Tan Khee Guan and Helen Lee Siew Heng
School of Social Sciences
USM Main Campus

ABSTRACT

The censored Tobit model is used to examine how socio-demographic factors affect the demand for seafood products in Malaysia. Results of the study indicate that households with matured and retired individuals appear to be more health-conscious and are more inclined to increase the frequency with which fresh fish appears in the household's diet compared to their younger counterparts. When number of household family members increases, expenditures on the respective fish products increases concomitantly. In addition, while expenditure levels are positively related to income for shellfish and processed fish, Chinese households tend to consume significantly more of the former and less of the latter compared to the others. Policy implications arising from this study include suggestions to the government authorities to reconsider educating the public and promoting fresh fish consumption in a more aggressive manner. The Malaysian government authorities should also consider investing more in its relatively infant aquaculture industry so as to control the prices and supply of these items. Steps should be undertaken to boost the processed fish industry due to its potential marketability. Lastly, small price changes may not precipitate substantial long-term adjustments in the eating habits of consumers since seafood products are generally considered as staple items in the Malaysian diet.

PROTEOMICS OF SNAKEHEAD FISH (CHANNA STRIATA) MUSCLE TISSUE

Lay-Harn Gam, Chiuan-Yee Leow and Saringat Baie
School of Pharmaceutical Sciences
USM Main Campus

ABSTRACT

Snakehead fish or also know as Haruan is recognized in Asia Pacific countries as a remedy for the healing of wounds. The fish enhances dermal wound healing, reduce post-operative pain and discomfort. The efficacy of wild type snakehead fish has made it a common food serves to women after childbirth or those that had undergone surgical operation. Due to the high demands of snakehead fish, farming of Snakehead fish is now carried out commercially, however the cultured fish has been said to produce different texture from the wild type fish. In this study, analysis of protein composition of the fish is carried out. Wild type Snakehead fish of different sizes and caught in different months of the year were compared. The data shows that the smaller fish yielded higher protein content as compared to the bigger fish, however the protein profile of the fishes is similar for all the different months of catching and different sizes of fish. The major group of protein in Snakehead fish is enzymes, followed by structural proteins. The consistent protein profile displayed can be used as a reference for farming and culturing of the Snakehead.

USING SOLAR ELECTRICITY TO OPERATE AN ENERGY EFFICIENT FAN GENERATING AIR MOVEMENT FOR THERMAL COMFORT INDOORS AND OUTDOORS

Abdul Malik Abdul Rahman
School of Housing, Building & Planning
USM Main Campus

ABSTRACT

To experience a thermally comfortable natural environment in a hot humid climate, one has to be under shade and experience some ample air movement concurrently. The Malaysian climate lacks the much needed air velocity for comfort and therefore have to rely on mechanical aids that use paid energy. The chlorofluorocarbon (cfs) emitted from air-conditioners is detrimental to the already worrying state of the ozone layer. The power comes from the use of electricity that comes from depleting the fossil fuels. The hypothesis is to create a lot of air movement relying on the electric fan without increasing the energy consumption to cool the building interior and indirectly the building fabric. Between the electric fan and air-conditioning, the electric fan is more environmental friendly. This research presents initiatives to design a fan that can produce a wider cone of air movement by its physical and dimensional design and also verifies that existing fan designs in Malaysian markets are unsuitable for its climate because they need more electrical energy to generate air movement for a bigger catchment area. Coupled with electrical supply from photovoltaic panels supplying direct current to the already energy efficient fan, very significant savings are obtained.

VALIDATION OF A NEW MEASURE OF JOB SATISFACTION: APPLICABILITY IN THE SERVICE SECTOR (IPTA's)

T. Ramayah and Aizzat Mohd Nasurdin
School of Management
USM Main Campus

ABSTRACT

The main intention of this study is to examine whether a different method of measurement can be better utilized to measure job satisfaction amongst employees in the service sector as compared to the traditional method widely used. The reason behind the proposed measurement is the contention that the importance an individual attaches to the different facets of JDI is not equal. The traditional method does not incorporate this into their measurement. The results show that there is indeed a significant difference in the ranking of importance of the different JDI facets. The sample ranked pay as the most important followed by work and promotion. Supervision and co-worker was ranked as not important by the sampled respondents. The reliability of the proposed measurement was very much higher in every facet compared to the traditional method. It was also true when compared to the original instruments reliability values of above 0.8 for each facet. As for the validity, the predictive validity of the proposed method was marginally lower in predicting organizational commitment as compared to the traditional method. The implications are that the managers have to look into the needs of the employees if they want to keep them satisfied. As for the researchers the proposed measurement is an alternative that can be explored in their future researchers.

IMPROVEMENT OF IMAGE QUALITY BY USING PHYSICAL FILTERS IN NUCLEAR MEDICINE IMAGING

Sayed Inayatullah Shah, Ahmad Zakaria and Tuhin Haque
School of Health Sciences and School of Medical Sciences
USM Health Campus

ABSTRACT

Single Photon Emission Computed Tomography (SPECT) is one of the diagnostic modality of nuclear medicine technology, which is used as an important tool for diagnosis of diseases in human. The limits of this modality among the others are due to equipment and the gamma photon physics viz., scattering and absorption of gamma photons in the patient's body. Due to the scatter effect, image quality is degraded and the non-linearity in the quantitation of radioactivity uptake is resulted. The work presented here attempts to explore the use of unconventional (material) filters in the Tc-99m SPECT for enhancement of image quality by reducing the effects of scattered gamma photons. Carlson phantom is scanned by mounting the filter(s) on the collimator face with cold and hot region inserts filled with water and Tc-99m radionuclide was uniformly distributed within the phantom. Images of the same phantom are also acquired without material filter (s).

Individual studies have been carried out for each material filter by using either LEGP or LEHR collimator. The standard energy window (126-154 keV centered at 140 keV) is chosen for the data acquisition. Results show that the perceived image quality of hot and cold region and also their detectability has been improved when unconventional filters are used. It is concluded that this approach may have important clinical applications.

COMPARING VARIOUS MODELS FOR SCOUR DETERMINATION AROUND PIERS USING THE LATEST TECHNIQUES

Prof. Madya Ahmad Shukri and Prof. Madya Aminuddin Ab. Ghani
School of Civil Engineering,
USM Engineering Campus

ABSTRACT

Scour is caused by accelerated flow and obstruction at the pier or bridges and these results in the long term process of degradation at the river bed where the pier is situated. The resulting scour will affect the structure of the bridge designed by engineers and eventually structure failure will occur. Thus, prediction of scour depth around piers is very important. The objective of this research is to compare 12 equations obtained from previous researches to predict scour depth around piers. A total of 384 observations were used to built the model. Three techniques, that is (1) multiple linear regression (2) robust regression and (3) neural network were used. For the multiple linear regression method and the robust regression method, comparison were made through the coefficient of determination (R^2), the adjusted coefficient of determination (R^2) and the mean error sum of squares. The assumptions for the error term were also checked to determine the performance of the model. For the neural network, the back propagation algorithm with feed-forward layer was used as the mapping tool to model the relationship between the input and output parameters. The result of the research shows that three techniques, the Aminuddin and Nalluri (b) equation gives the best model to predict local scour depth around piers

TRACE METAL SPECIATION STUDIES IN NATURAL WATERS

Norita Mohamed and Lim Poh Eng
School of Chemical Sciences
USM Main Campus

ABSTRACT

Speciation analysis of trace metals in water may be defined as the determination of the concentration of the different physio-chemical forms of the metal which make up its total concentration in the sample. This work involves the development of a method for the determination of operationally-defined metal species at natural concentration levels. It incorporates physical speciation by size using ultrafiltration of the soluble metal species and the subsequent chemical characterization of the various size fractions using different sorbents which will distinguish labile complexes, non-polar organic adsorbable matter and ion exchangeable substances. A set of three columns packed with different sorbents, namely, cation-exchange resin Chelex-100, anion-exchange resin Dowex 1-X8 and C-18 reversed phase was developed. The retention of metal species in each size fraction onto the sorbents at different pH conditions was investigated. Experiments were performed with metals in the presence of model ligands, namely, nitrilotriacetic acid (NTA), ethylenediamine tetraacetic acid (EDTA), humic acid (HA), 8-hydroxyquinoline 5 sulphonic acid (SOX) and 8-hydroxyquinoline (OX). The applicability of the method was investigated using synthetic river water samples spiked with species of metals. The retention behaviour of Pb, Cd, Cu and Zn as free hydrated ions and after conversion into negative or neutral complexes on various substrates were also investigated.

THE USE OF LACTIC ACID AND SODIUM LACTATE AS ANTIMICROBIAL PRESERVATIVES IN COMBINATION WITH CHILLING AND FREEZING IN THE CONTROL OF MICROBIAL QUALITY OF SEAFOOD.

Prof Madya Dr. Noryati Ismail, Encik Hamdan Jaafar
School of Industrial Technology
USM Main Campus

ABSTRACT

High microbial load in fresh prawns from the state of Penang and the presence of *V. cholerae*, *V. paraheamolyticus*, *E. coli* and *Salmonella* contamination necessitated a decontamination method to improve the safety and quality of fresh prawns. Studies on the regulated dipping of prawns (1,3,10,20 and 30 min) in lactic acid (LA) (1.5% and 3.0% v/v) and buffered lactic acid (2.5% v/v) as antimicrobial in the decontamination step in the processing of prawns were carried out. Results of dipping experiments, at chilled temperature, with prawns previously inoculated with a predetermined (7-9 log₁₀) colonies of *V. cholerae*, *V. paraheamolyticus*, *E. coli* and *Salmonella* showed that bacterial load was greatly reduced to nearly 3 log₁₀ CFU/g as the acid concentration increased at the longest exposure time (30min). Buffered lactic acid (2.5% v/v) and sodium lactate (0.5 and 2.5% v/v) when used as antimicrobial in the glazing water of frozen block prawns (at -18°C for 90 days) showed synergistic effect of freezing and colony reduction (58.8% to 85.7%) in all the inoculated prawn. Effect of dipping indicated an acceptability of prawns when dipped in lactic acid at 1.5% for no longer than 10 min. and frozen prawns when glazed in 2.5% in buffered LA. The study successfully demonstrated the use of lactic acid and buffered lactic acid as antimicrobial in the decontamination step in combination with chilling and freezing in the control of microbial quality of prawns.

PERKHIDMATAN KESEDARAN KINI/ CURRENT AWARENESS SERVICE

ADHESIVES

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DAIRY

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