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Foreword

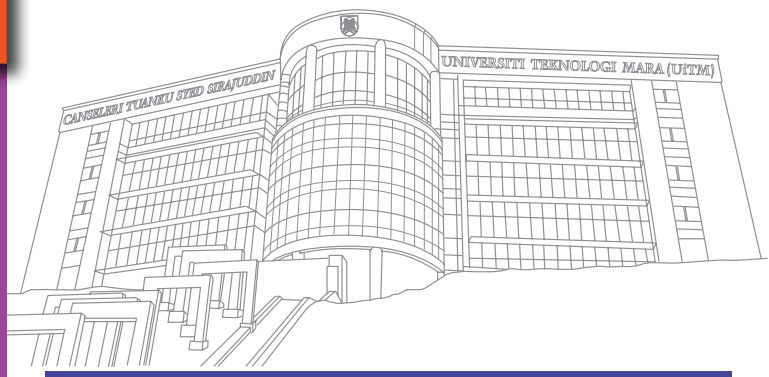
The fifth issue of the Doctoral Research Abstracts features the abstracts from 29 PhD doctorates receiving their scrolls in this 80th UiTM momentous convocation ceremony. The publication captures the novelty of their research and marks UiTM's acknowledgement and tribute to the graduands whose achievement we proudly celebrate. It also reflects IGS conscientious effort to publish these abstracts which range from the discipline of science and technology, business and management to social science and humanities.

To the 29 doctorates, I would like to congratulate your achievement on this auspicious occasion. This convocation is one of the important milestones in marking the course of your accomplishment. Despite all obstacles, with the support of your families and friends, this moment reflects your deserving efforts in paving your career path.

On that note, on behalf of UiTM, I wish you the very best in your future undertakings and sincerely hope that you will remember and cherish the moments that you have in UiTM. May the Almighty guides us to the straight path in our endeavour for academic excellence and grant us success in this world and hereafter.

Tan Sri Dato' Sri Prof Ir Dr Sahol Hamid Abu Bakar ,
FASc, PEng
Vice Chancellor
Universiti Teknologi MARA

Editorial Committee



This newsletter was created to disseminate information on the research carried out by the doctoral graduates of UiTM by sharing the abstract of their thesis.
For more information do not hesitate to contact us at http://ipsis.uitm.edu.my

Table of Content:

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Name :
Salah Mohamed Khalil Abdelgalil

Title
A Study On Workability Measurement And Correlation With Performance Of Hot Mix Asphalt

Faculty :
Civil Engineering

Supervisor :
Associate Prof. Ir. Dr. Ahmad Kamil Bin Arshad (MS)
Dr. Siti Zaharah Binti Ishak (CS)

The difficulty in obtaining the required density and smoothness of constructed pavement, establishing conformity between registered process input parameter and tested output of asphaltic concrete; couple with the effect of small change in aggregate gradation on the workability of asphaltic concrete just as inadequate compaction can result to moisture induced damage are the main factors that triggers this research. The research was therefore undertaken to improve means of measuring workability. The research was divided into three tasks. Task one was consideration of all the materials used in the research. Task two was undertaken to achieve the first objective which is development of an improved workability measuring device. The components were designed, fabricated and a suitable transducer was incorporated. In order to obtain the best paddle suitable for the device out of three types paddle configurations named A, B and C. Seven types of mixes were designed in accordance with (PWD) Malaysia's specifications for road works. Marshall Mix design method was used to obtain the optimum asphalt binder content for the AC14 gradation of three different aggregate fractions used to test the paddles. The first three mixes designed used bitumen of 80/100 penetration, while the other three mixes designed were identical gradation of bitumen 60/70 penetration and the last mix used the Reclaimed Asphalt Pavement (RAP). The RPM was set essentially to 5, and then adjusted to 10,15,20,25 RPM. The device developed was used to blend the mixes at six different temperatures. Dry sieved aggregate, wet sieved aggregate and warm mix asphalt was used to assess the gradation of aggregate and the reliability of device operation. Task three was undertaken to achieve the second, third and fourth objectives. The first three mixes designed were used at different mixing temperatures 140 °C & 150 °C and 5 different compaction temperatures. It was found that Paddle B having speed of 10 RPM is suitable for the device because it provides a wide range of torques. For the second objective, it was found that the value of Torque is influenced by compaction, mixing temperature and gyration; there is however no significant relationship between torque; resilient modulus, Stability and Flow. Also, the research finding suggests that the higher the mixing temperature, the lesser the value of torque. Furthermore, it was found that the increase in gyration will result in the increase in the value of torque. For the third objective, the finding demonstrate that all the three proportions of the same nominal maximum aggregate size AC14 yielded different values of torque. It was also found that the fine aggregate yields more torque (less workable). In addition, the range of torque for AC 14 is 12kNm to 20kNm; and that wet sieved aggregate mix yielded less torque than the dry sieved aggregates. Results for the fourth objective suggest that any increase in TSR at different levels of mixing and compaction will decrease the value of torque any value of torque above 17.2kNm is an indication of moisture-induced damage. It was recommended that the findings in this research be tested on a full-scale, flexible pavement construction.

2

Name :
Azmi Bin Mohamed

Title
Non-Contact Approach Of Roundness Inspection For Machined Parts

Faculty :
Mechanical Engineering

Supervisor :
Associate Prof. Ir. Dr. Muhammad Azmi B. Ayub (MS)
Associate Prof. Sunhanji B. Haji Kiyai Abas (CS)

The geometrical tolerance verification of machined part is a process composed of a set of inspection procedures and rules that are complex, tedious and slow. The methods and instruments used to inspect geometrical tolerance of the parts are quite conventional and require a high skill and knowledge to assess the quality of the machined parts. For this reason, this research develop a method to effectively perform the inspection process by recommending non-contact approach using machine vision and new simple mathematical models that can be used for the creation of an inspection system to assist in the verification of an important form tolerance of machined parts. The main goal of this research is to develop method and procedure of roundness measurement that are simple to implement but at the same time is fast and effective to provide reliable technique that help the metrologist to make evaluation for the inspected parts. Two samples of cylindrical machined parts are selected to be measured by this non-contact approach. A test-rig set-up which consists of main components such as workholding fixture, CCD camera, lighting device and motor was developed in order to carry out this study. This research proposes new procedure in image processing by using WiT software. In addition, a new mathematical model for evaluation of roundness error is proposed according to the analogy given by Minimum Zone Circle (MZC) method. The proposed approach and mathematical models were analyzed using several

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(CS) = Co Supervisor

set of number of part images. The results showed that the non-contact inspection system for roundness error were effective and reliable enough to assess this form tolerance. This concept of measurement can be further improved to obtain better accuracy of the roundness error assessment. In summary, this research suggests a new method for geometrical tolerance inspection for machined parts by using machine vision. This system provides flexibility in term of the inspection set-up and is potentially applied for in-line and hundred percent (100%) inspection of the cylindrical machined parts.

3

Name :
Rizal Effendy Bin Mohd Nasir

Title
Longitudinal Flight Dynamics And Stability Of Blended Wing-Body Unmanned Aerial Vehicle With Canard As Control Surface

Faculty :
Mechanical Engineering

Supervisor :
Prof. Ir. Dr. Wahyu Kuntjono (MS)
Prof. Dr. Wirachman Wisnoe (CS)

Blended wing-body (BWB) aircraft concept has its body „blended" with the wing in smooth transition. Unlike conventional aircraft design, BWB aircraft"s body produces lift force and this causes large impact on the flight dynamics and stability. This thesis focuses on flight dynamics of a small unmanned aerial vehicle (UAV) with BWB configuration incorporating a set of canard as longitudinal control surface. The objective is to predict the flight dynamics and stability behaviour of UiTM"s Blended Wing-Body (BWB) unmanned aerial vehicle (UAV) with canard as control surface, known as Baseline-II E-2, in longitudinal mode with classical-approach stability augmentation to achieve level 1 phugoid and short-period modes flying qualities (restricted to damping ratios) as stated in MIL-F-8785C standard. This study proposes simple scheduled feedback gains to the canard. Wind tunnel experiments, computational simulations and empirical estimations were conducted to characterize its aerodynamics and to come up with its aerodynamic mathematical model for flight dynamics derivatives calculation. The flight dynamics model was derived to become Model-N state-space representation and compared to established models. Transient response to a unit step canard input was simulated using these models for flight conditions inside the airplane operating flight envelope (OFE) within its allowed angle of attacks. It was found that the BWB airplane without SAS, despite being statically and dynamically stable, has poor flying qualities for both short-period and phugoid modes. The change of short-period and phugoid modes" natural frequencies and damping ratios with respect to airspeed, dynamic pressure and altitude were studied to establish mathematical relationships that were used to design a suitable scheduled gains to be fed to the canard control surface. Classical method was used to come up with feedback gains relationships with respect to dynamic pressure. By setting the required damping ratios for both modes to a demanded value couples with simplifications to these equations, the magnitude of feedback gains could be determined. The relationship between feedback gains and dynamic pressure was used to construct a representative block diagram of the complete aircraft control system with stability augmentation using canard control surface in Matlab SIMULINK. The resulting transient response were analyzed to compute values of short-period and phugoid modes" damping ratios. The results of these damping ratios show that the aircraft with SAS has good flying qualities (Level 1) while maintaining short-period and phugoid modes" damping ratios to around 0.7. This study has shown that it is possible to provide adequate stability and good flying quality for a flight limited to its operational flight envelope to a small BWB aircraft with canard as its control surface via simple feedback gains governed by dynamic pressure.

4

Name :
Noraini Bt Ahmad

Title
Control Of Daylight And Artefacts Display And Placement In Historic Museum Galleries

Faculty :
Architecture, Planning & Surveying

Supervisor :
Associate Prof. Dr. Sabarinah Bt Sheikh Ahmad (MS)
Associate Prof. Dr. Anuar Bin Talib (CS)

Daylighting in historic museum galleries is not an easy criterion to manage as natural light fluctuates according to the sky conditions; hence the need for strategic daylight control programme becomes evident. Currently, there is limited information on daylight performance for conservation of artefacts in daylit historic museums in Malaysia. This thesis aims to evaluate daylight performance for artefact conservation through passive design and control strategies in historic museums under the tropical sky conditions. This research focuses on evaluating the existing illuminance levels, UV levels, daylight factor, light-fastness survey and visitors' perception on the exhibits' conditions and their visual responses on the daylighting conditions. The performance of daylighting was evaluated based on typical

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(CS) = Co Supervisor

sidelighting configuration in four types of gallery: balcony, corridor, compartmental and open planning. The research was performed through three experiments; namely, *Phase I*: field measurements of the illumination and UV levels and Visitors' Survey; *Phase II*: light-fastness dosimeter exposures; and *Phase III*: computer simulation study. The results from *Experiment I* (field measurements) showed good correlation between the outdoor and the indoor displays' illuminance levels where the display placement and orientation of sensitive artefacts affected the daylight distribution pattern. Meanwhile, the visitors responded that the daylighting pattern affected the artefact conditions and their viewing satisfaction. The findings from *Experiment II* (light fastness dosimeter survey) revealed that after exposures of 90 to 100 days, the dosimeters showed photo-induced colour changes under both daylight and artificial light. Further analyses showed good correlation between simulated light dosimeters and measured illuminance data. Thus, an equivalent light dosimeter is a suitable tool to assess the impact of light distributions, which translated exposures into equivalent luminous and estimated annual exposures (Lux hours). The results from *Experiment III* revealed that computer simulated illuminance and measured illuminance data showed good correlation. The simulation analyses revealed both surface reflectance and ceiling geometry could act as a passive control mechanism with the physical features as a conservation criterion in the gallery. The thesis introduces the issues of daylight distributions, the placement of display components, the orientation of artefacts, light fading occurrences, the visitors' visual perception of the galleries and the function of daylight data towards artefact conservation planning. These measured components were extended into passive daylight control assessment through simulation studies. The study confirms the feasibility of retrofitting historical buildings into museum galleries as well as recommends strategies and best practices for proper building adaptation towards artefact conservation.

5

Name :
Shahab Kariminia

Title
Outdoor Thermal Comfort Of Open Urban Squares In Moderate And Dry Climate

Faculty :
Architecture, Planning & Surveying

Supervisor :
Associate Prof. Dr. Sabarinah Bt Sheikh Ahmad (MS)
Associate Prof. Dr. Megawati Bt Omar (CS)

The recent inadvertent development of urban areas alongside the global climate change has highlighted the predominant role of urban climate in the quality of residents' life. Affected by landscape attributions, anthropogenic heat and urban geometry, the urban climate strongly correlates with outdoor thermal comfort and building's energy programme. A climate-responsive urban planning ameliorates thermal stress and enhances the social and economic activities accommodated by the cities. Influenced by outdoor thermal comfort, repeated human presence at open urban spaces is a gauge of urban design success. Nevertheless, the available literature studies have mostly addressed either indoor comfort or the energy budget of urban canyons or parks but not much is published on outdoor thermal comfort in the temperate and dry climate of the Middle East. This study aims to present the results of a quantitative empirical outdoor thermal comfort study at two urban squares with focus on the visitors' thermal sensations. Explicitly, the objectives of this study are to predict outdoor thermal comfort; to examine the effects of built environments on the public thermal sensation and to propose modification strategies. The study areas are located in downtown Isfahan, Iran (51°41' E, 32°37' N, 1590 m elevation) in a temperate and dry zone. Based on different environmental elements, four separate locations were monitored across each square in the winter of 2009 and summer of 2010, measuring meteorological data and surveying the visitors' thermal sensations. The influences of form, geometry and vegetation on thermal conditions of the squares were also investigated through computer simulations by ENVI-met software. Microclimatic parameters varied across the square with regards to the environment properties. Based on Physiological Equivalent Temperature index, thermal comfort range, neutral and preferred temperatures were established for the both extreme conditions in this climatic and human zone. The range was much wider than those derived by previous studies in different climatic zones. Adaptation aspects were found to be decisively affecting thermal sensations. Outdoor thermal comfort imperceptibly depended on demographics. Although the simulations showed that thermal comfort was difficult to reach passively in such extreme climate, a combination of strategies such as appropriate orientation, aspect ratio, plan ratio, size, galleries and use of vegetation made the improvement possible. These strategies included. Meanwhile, aspect ratio and size were observed to be the most effective strategies. The study outlined design recommendations which will assist designers and city planners to provide more sustainable and comfortable outdoor urban spaces for both residents and visitors.

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Name :
Che Mohamad Som Bin Said

Title
Failure Of Thick Rubber Vulcanizates By Blowout

Faculty :
Applied Science

Supervisor :
Prof. Dr. Hj Azemi Samsuri (MS)
Dr. Alias Othman (CS)

One of the premature failures of truck and bus tyres is associated with temperature rise known as blowout that occurs in the thick shoulder regions of the tyre. It occurs due to various dissipative processes under dynamic deformations. The heat produced is sufficiently high to cause thermal degradation that produces volatiles, which consequently exerts internal pressure sufficiently large to tear open a path to the exterior. Blowout failure may cause fatal road accidents. Although the tyre industry is aware of the problem, research in this area is still inadequate apart from the work conducted by Gent and Hindi in 1988, Choi and Kim in 1998 and Park in 2000. The factors affecting heat generation are still not fully investigated, thus the work presented in this thesis has covered the areas which are not covered by the previous researchers. This includes the work to investigate the effects of glass-transition temperature, Tg of the rubber, partcicle size of the filler, structure of filler, viscosity of process oil and coupling agent on silica-filled vulcanizate on temperature rise and blowout failure. Temperature rise and blowout failure tests were conducted by subjecting a cylindrical test-piece to flexing in a compression flexometer at a constant displacement amplitude in accord with ISO466/3-1982. The compression flexometer was modified accordingly to monitor the temperature rise in the interior of the test-piece continuously until the occurrence of blowout failure. Thus this enables the true blowout temperature to be registered. Some of the interesting findings are highlighted in this abstract. In unfilled vulcanized rubber, the temperature rise was found to increase in the increasing order of the Tg of the rubber, NBR>SBR>NR. However, the heat produced was not sufficiently high to cause blowout failure because the heat generated by mechanical work was not sufficiently high either to cause degradation of rubber or to cause breaking of chemical crosslink. In black-filled vulcanizates, temperature rise and blowout were affected by the Tg of the rubber, filler loading, particle size and filler structure. Increasing the Tg, filler loading, filler structure and decreasing the particle size increased temperature rise and shortened the blowout time. The blowout failure was also affected by the process oil. Blowout time was shorter with paraffinic oil than aromatic oil. In the case of silica-filled vulcanized rubber, temperature rise and blowout temperature increased with increasing amount of coupling agent (TESPT) beacuse the hardness increased progressively with increasing TESPT and hence higher dynamic work was required to deform the test-piece at a constant displacement amplitude. The results show that the actual blowout temperature was much higher than the temperature recorded at the base of the test-piece. The blowout temperature of the interior of the test-piece was 200oC for NR and 230 – 240oC for NBR and SBR respectively. These actual blowout temperatures are in good agreement with those reported independently by Gent and Hindi, and that of Choi and Kim.

7

Name :
Hedzelin Bt Zainuddin

Title
Module Temperature Modelling For Free-Standing Photovoltaic System In Equatorial Climate

Faculty :
Applied Science

Supervisor :
Associate Prof. Dr. Sulaiman Bin Shaari (MS)
Associate Prof. Dr. Ahmad Maliki (CS)
Dr. Shahril Ir. Wan Bin Sulaiman (CS)

The final generation of energy is always one of the important issues in any assessment protocol in determining the performance of a photovoltaic (PV) system. This energy generation depends on several key factors, which may be linked and formulated in a mathematical model that addresses the operating PV module temperature (MT). Whilst much effort have been put into modelling these relationships, very few studies have been conducted in this aspect under equatorial rainforest and fully humid climate region, vis-a-vis Malaysia. Moreover, none of these models developed in Malaysia are for free-standing (FS) systems. This has large impact on solar farms, as an accurate model is critical, in view of the proliferation of such farms in Malaysia. This study presents the development of MT models for FS PV system in Malaysia via simple linear regression (SLR), multiple linear regression (MLR) and multi layer

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(CS) = Co Supervisor

feed-forward neural network (MLFFNN) techniques. These techniques address two specific issues; quantification of relative contribution of predictors to MT model such as: solar irradiance (SI), ambient temperature (AT), relative humidity (RH) and wind speed (WS); and the modelling performance of the simple linear, multiple linear and MLFFNN models. The modelling performance was analysed using root mean square error (RMSE), coefficient of determination (R2) and mean absolute percentage error (MAPE). This study was done in four segments which are: field testing; mathematical modelling; statistical analysis; and artificial neural network (ANN). The field testing was conducted at a grid-connected PV system in Shah Alam, Malaysia. The mathematical and statistical segments are done to establish simple linear and multiple linear models. These models are developed using SLR and MLR techniques. Finally, the ANN segment is done to establish a nonlinear model via MLFFNN technique. The modelling performance of the models developed is then compared with other published models. In this work, a new and novel data filtration technique was developed and a new threshold value of SI was established. The technique is called thermal equilibrium point (TEP) and the threshold value is 40 Wm-2. With respect to the quantification of the relative contribution of the predictors towards MT, it was found that SI = 53.8 %, AT = 37.2 %, RH = 4.9 % and WS = 4.1 % respectively. In addition, the MLFFNN model perform better than the multiple linear model by 12.0 % and 5.3 % in terms of RMSE and R2 respectively; but the multiple linear model perform better than MLFFNN model by 1.0 % in terms of MAPE. This shows that MLFFNN MT model is the best model in terms of modelling performance. In conclusion, this study has succeeded in quantifying the relative contribution of solar irradiance (SI), ambient temperature (AT), relative humidity (RH) and wind speed (WS) towards MT; establishing a new data filtration technique; identifying a new threshold value; and developing an accurate MT model for FS PV system in Malaysia.

8

Name :
Masitah Bt Alias

Title
Development Of Method For Simultaneous Measurement Of Gross Alpha And Beta In Aqueous Environmental Samples

Faculty :
Applied Science

Supervisor :
Associate Prof. Dr. Hj Zaini Bin Hamzah (MS)
Dr. Zaharudin Ahmad (CS)
Dr. Abdul Kadir Ishak (CS)

Measurement of gross alpha and beta in aqeous environmental sample using standard method is a very lengthy, tedious and time consuming process. Alternatively, liquid scintillation counting (LSC) offers a better solution, since the latest model of LSC offer simultaneous counting of gross alpha and beta. The success of LSC technique will depend on two factors; first is the proper setting of the LSC window and its pulse shape analyzer (PSA) concluded in the new protocol for alpha beta simultaneous counting. Secondly, the successful incorporation of the water phase which contains the radionuclides into the organic solvent phase using proper choice of emulsifier which produce a clear stable solution with reasonably high counting rate and figure of merit. This new developed method was validated to ensure that it gave accurate and precise results and the method was verified. Later, the method was applied for measuring various types of environmental water samples including river water, lake water, hot spring water, sea water, mineral and drinking water. The activity concentrations of gross alpha and gross beta in various types of water were above the limit of National Water Quality Standard except for bottled mineral and drinking water. Another aspect of this study was to construct the gross alpha and gross beta spectra using Microsoft excel in order to identify the radionuclides present in the samples through their spectrum. Therefore the result was not only based on the count rate but also the spectrum of the samples. Additional information from the spectrum will help researcher to plan for further analysis if needed.

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Name :
Rosnah Bt Zakaria

Title
Development And Characterization Of Modified Silicone – Dammar Coating Resin

Faculty :
Applied Science

Supervisor :
Associate Prof. Dr. Azizah Hanom Ahmad (MS)
Prof. Dr. Abdul Karim Arof (CS)

The purpose of this study is to develop and characterized the new modified silicone binder resin. The silicone, synthetic resin bought from Dow Corning Corp. and dammar bought from local supplier. Ten (10) samples were prepared and one of them was silicone resin without dammar. The samples were designated as SD0, SD5, SD10, SD15, SD20, SD25, SD30, SD35, SD40 and SD45. The mixture was coat onto aluminum q-panel using spin coater and left in room temperature for around 7 – 8 days for curing process. The cured samples were undergone the mechanical and electrochemical characteristic. The mechanical characterizations include viscosity, cross-hatch test, pull off test, wetting and impact test. Results for cross hatch test showed that 5-15 wt% of dammar in the silicone resin provide the better adhesion on aluminum q-panel with the edges of the cut are smooth and none of the square lattice detached. In the impact test, no fracture can be observed on the impact surfaces when the 1 kg load was released on SD0 – SD20 dried coating surfaces. The pull off test result showed that SD15 requires the highest pressure to pull the coating thin film off the substrate. While, SD20 showed highest non-wetting angle at 90.13 degree and SD10 had the highest surface tension energy at 179.80 J in the contact angle experiment. While, electrochemical characterizations include FTIR, TGA, XRD, thermal conductivity and impedance spectroscopy. In comparison of SD resistivity data measurement, it was found that SD15 showed stable value at average log R = 6. This proves the SD15 cured coating did not deteriorate under 3% saline solution. Thus FTIR spectra depicts a complexation of reactions occurs around 1700 cm-1 due to dammar added especially at SD15 spectra. However, dammar tends to be decomposed when it undergone the TGA characterization. It is the nature of dammar, when people usually used dammar for the torch. Thermal barrier characterization reveals the small k-value for all SD unless SD20 and SD25. The X-ray diffractions confirm the crystalinity pattern of pure silicone exist in every sample but SD15 shows one highest intensity that make it more crystalline than others. After all, the SD15 showed good performance of mechanical and electrochemical characterizations. The high technology of nanoindentation and nanoscratch also used to measure the coating adhesion. SD15 is good combination because it is soft with hardness of 1.624 GPa but buckling functional of molecule is 4.64 x 106 beside it is also stiff at 6.67 x 104. These properties make SD15 a suitable binder. The increase of dammar content can provide the substrate a better mechanical protection like scratch resistance, scratch hardness and higher elastic recovery. In comparison among the four selected SD samples, SD40 shows the highest scratch resistance and elastic recovery. Overall, SD15 showed the result of soft coating and SD10 as the harder coating with highest value of stiffness. The FTIR result showed the SD15 have good chemically interaction between silicone and dammar molecules. In addition, SD5 to SD15 have good resistivity of thermal conductivity. These results make SD15 the best composition.

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Name :
Siti Nur Liyana Bt Mamauod

Title
Preparation, Characterization And Properties Of Epoxidized Palm Oil-Modified Epoxy Resin/Glass Fiber Composite

Faculty :
Applied Science

Supervisor :
Associate Prof. Dr. Mohd Hanafiah Abidin (MS)
Dr. Ahmad Zafir Ramli (CS)

Surface treatment was carried out on E-glass fiber surface using different concentrations of hydrochloric acid solutions [0.01M-2.0M]. The morphologies of untreated and treated E-glass fiber surfaces were analysed by using scanning electron microscopy (SEM) and the peak of silanol group was identified by using Fourier Transform Infrared (FTIR). The treated glass fiber composites at 0.01MHCl showed the improvement on the tensile properties as compared to untreated and treated glass fiber composites at concentrations ranging from 0.1M to 2.0MHCl. Apart from that, the modified epoxy resin had also been studied by adding epoxidized palm oil (EPO) in the synthetic epoxy resin and it has a potential to partially substitute and toughen synthetic epoxy resin. The EPO was blended with the DGEBA type epoxy resin to determine the stoichiometric ratio for each ingredient for modified epoxy resin. Epoxidized Palm Oil modified epoxy resin was successfully cured by using aliphatic amine curing agent in the presence of imidazole catalyst of varied percentage ranging from 5% to 35%. The curing characteristics of modified epoxy resins were studied by using differential scanning calorimetry (DSC) and thermal gravimetric analyser (TGA). DSC and TGA thermograms revealed that 5% of imidazole catalyst provides good thermal stability as compared to the other percentages of imidazole catalyst. The value of glass transition temperature of modified epoxy resin that contains 5% imidazole

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(CS) = Co Supervisor

catalyst gave the low Tg value and it indicates the flexibility properties. The modified epoxy resin exhibited rubbery behaviour due to the flexibility of fatty acid chain of EPO thus, improved the toughness of synthetic epoxy resin properties. Furthermore, the composition of cured modified epoxy resin was analysed using FTIR to identify the functional groups that produced after crosslinking reaction between EPO, epoxy and amine curing agent. According to the FTIR spectrum of the hybrid polymer resin indicates that the intensity of epoxide band decreased with the increment of the hydroxyl group intensity. It was proven that the curing reaction occurs with the opening of functional group of epoxide ring. Laminated glass fiber epoxy composite was fabricated by hand lay-up technique and it consists of one to four layers of glass fiber. Whereas for the hybrid polymer resin composite, it was fabricated using hand lay-up and dipping techniques. The mechanical and physical properties of the laminated glass fiber epoxy composites were analysed and compared with the properties of hybrid polymer resin composites. The tensile results of hybrid polymer resin composites showed the decrement on the tensile properties but for the impact result, it shows the increment of impact strength due to toughening properties of hybrid polymer resin about 210.6 kJ/m2. For the water absorption results, it shows that hybrid polymer resin composite absorbs more water compared to laminate glass fiber composite. It would be happen due to the effect of crosslinking density. Meanwhile, the diffusion coefficient value of laminated glass fiber composite is high due to the polarity effect.

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Name :
Ahmed Abdullah Saleh Al-Shalabi

Title
Efficient K-Coverage Scheduling Algorithms For Wireless Sensor Networks

Faculty :
Computer & Mathematical Sciences

Supervisor :
Associate Prof. Dr. Mazani Manaf (MS)

Sensors are tiny devices, which consume low power and are inexpensive; they are used in many applications, such as, military surveillance, target tracking, forest-fire alarm. Many applications require *k*-coverage network to ensure the quality of the monitored area, where every single point is assured to be concurrently covered by a minimum of *k* sensors. Meanwhile, the network that provides more than the required *k*-coverage degree does not enhance the performance, but just increases the number of working sensors, and shortens the network lifetime. Preserving the requested *k*-coverage for Wireless Sensor Networks, while prolonging the network lifetime with a small computation cost, is a major challenge. This research demonstrates distributed and energy-efficient *k*-coverage scheduling algorithms that preserve the required *k*-coverage and prolong the network lifetime. An efficient *k*-coverage algorithm for sensors with fixed sensing range (Maximum Layers Scheduling algorithm - MLS) is demonstrated. MLS efficiently builds maximum number of layers, where, each layer consists of a disjoint set of working sensor nodes that conserve 1-coverage for the whole monitored area, and 1-connection that guarantees each layer is connected, and can individually deliver the data reporting to the base station. Moreover, MLS competently schedules the layers to conserve the required *k*-coverage degree, distribute the power consumption among sensors, and prolong the system lifetime. Experimental results show that, the MLS algorithm minimizes the average number of active sensors and the average coverage degree, and prolongs the network lifetime, compared to two popular *k*-coverage algorithms. Furthermore, MLS efficiently reduces the computation complexity and distributes the energy expenditure among sensors in the network. The second algorithm demonstrated in this study is Dynamic *k*-Coverage Scheduling Algorithm (D*k*CS), to prolong the network lifetime and preserve the required *k*-coverage in WSNs. The D*k*CS provides two types of *k*-coverage, static and dynamic. The static *k*-coverage provides *k*-coverage for all the monitored area, whereas, the Dynamic *k*-coverage provides *k*-coverage for intruder zone, while the rest of the monitored area is 1-covered. The network decides to run static or dynamic *k*-coverage scheduling, based on the coverage status of the layer, to ensure preserving the required *k*-coverage degree. Experimental results show that, the D*k*CS algorithm profoundly reduces the average number of active sensors, power consumption, and efficiently prolongs the network lifetime. The third demonstrated algorithm is a power aware *k*-coverage algorithm for WSNs with adjustable sensing range. The power consumption of this kind of sensor depends on the extent of the sensing radius. For this type of sensor, setting the coverage range to the minimum is necessary to decrease the energy consumption. Each sensor uses the least possible sensing range to provide coverage, without affecting the network *k*-coverage; on the other hand, the activated sensors are able to cover the same area, if the operational sensors are activated with their maximum sensing range. Experimental results show that, the proposed algorithm minimizes the sum of sensing energy cost of all sensors without affecting the network coverage, and also efficiently distribute the power among sensors in the network and prolong the network lifetime. Finally, a Dynamic *k*-Coverage Scheduling algorithm for WSNs with Adjustable sensing range (D*k*CSA) is demonstrated, where D*k*CS is implemented over MLSA to provide a dynamic scheduling algorithm for WSNs with adjustable sensing range capability. Experimental results show that, the D*k*CSA saving the network power, and prolonging the network lifetime, compared to D*k*CS.

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(CS) = Co Supervisor

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Name :
Nor Zatul-Iffa Ismail

Title
Modelling Students' Understanding Of Introductory Statistical Concepts: A Cross Sectional Study Using Rasch Measurement Model And Structural Equation Modelling

Faculty :
Computer & Mathematical Sciences

Supervisor :
Associate Prof. Dr. Zamalia @ Hjh Zamalia Mahmud (MS)
Prof. Dr. Haji Mohammad Said Zainol (CS)

Teaching and learning of statistics is becoming an increasingly important issue in statistical education. One pressing issue is how to continuously improve the teaching and learning of statistics at the tertiary level. Given its importance, statistical education researchers have attempted to investigate factors that relate to students' learning outcomes in statistics. Among the continuous issues of concern is how to improve the teaching and learning of statistics at the tertiary level. Despite the great emphasis on the importance of statistics, students are still facing difficulty in learning statistics. This study focused on modelling factors associated with students' understanding in basic statistical concepts namely students' perceived ability, students' attitudes, teaching practices and learning practices using Structural Equation Modelling. The reliability, unidimensionality, and validity of the Perceived Ability in Statistical Concepts Questionnaire (PASQ), 30-item Multiple Choice Questions (MCQ30), Survey of Attitudes toward Statistics (SATS), Teaching Practices in Statistics Questionnaire (TPSQ) and Learning Practices in Statistics Questionnaire (LPSQ) were examined based on the Rasch Measurement Model and confirmatory factor analysis. The major advantages of the Rasch analysis over the Classical Test Theory is that it produces linear, interval measures, item-free person measures, and sample-free item difficulty estimates on the same linear scale in standard units (logits). The results showed that students' perceived ability in statistics tend to be strongly related to students' test performance and students' attitudes toward statistics.Teaching practices also significantly affect students' learning practices. Learning practices and teaching practices does not necessarily affect attitudes toward statistics and do not also necessarily lead to increase in students' learning as demonstrated in their test performance.

13

Name :
Nurulhuda Bt Noordin

Title
Efficiency Factors And Ecosystem Framework In Malaysian Halal Food Certification System

Faculty :
Computer & Mathematical Sciences

Supervisor :
Associate Prof. Dr. Nor Laila Md Noor (MS)
Associate Prof. Dr. Zainal Samicho (CS)

The *halal* market has grown tremendously due to the Muslims' global demand of *halal* quality on products as prescribed by the shariah law. *Halal* is accepted as a quality standard and is applied to product supply and manufacturing encompassing processed food, cosmetics, pharmaceutical and medical products. *Halal* suppliers or manufacturers must abide to the *halal* quality regulation enforced by the public, semipublic and private regulatory bodies offering *halal* certification. These regulatory bodies play an important role within the *halal* supply chain as their operational efficiency may effect the efficiency and the competitiveness of the *halal* industry. This research is conducted to investigate the strategic approach on *halal* quality management to address operational efficiency of the *halal* food certification system using the Malaysian *halal* certification as a case study. The case study comprises of activities that investigate the factors that influence operational efficiency of *halal* certification before proceeding with a detailed and holistic description of the *halal* ecosystem as a strategic approach. A preliminary study that was conducted to gauge the relevancy of this work revealed that the *halal* certification enforcement is plagued with a diversity of issues centered on inefficient work process due to the lack of manpower, scarce use of technology and reliance of manual work process and governance structure that slows down the certification process. Two main studies were further conducted to investigate the perspective of the supply and demand sides of *halal* certification. The first study looks into the supply side where face-to-face interviews were conducted with representatives of *halal* regulatory bodies from the public, semi-public and private regulatory bodies followed by document reviews of the practice. The second study looks into the demand side where

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face-to-face interviews were conducted with processed food manufacturers to determine issues of *halal* certificate application. A qualitative analysis on each study was done to determine factors that influence the operational efficiency of the *halal* certification process. A further analysis using value chain analysis and work systems method were conducted to produce a new *halal* value chain, a new halal work system and a new detailed view of the halal ecosystem. From the *halal* ecosystem, a new *halal* governance structure is also carved out. The outcomes of this research contribute to the knowledge on strategic use of information systems where religous view is an important part of the organizational structure.

14

Name :
Suhaila Bt Abd Muid

Title
Modulation Of Inflammation And Endothelial Activation With Spaceflight Travel: Tocotrienols As Atheroprotective Agents

Faculty :
Dentistry

Supervisor :
Prof. Dr. Hapizah Md Nawawi (MS)
Prof. Dr. Abdul Manaf Ali (CS)
Associate Prof. Gabriele Ruth Anisah Fromming(CS)

The effects of immediate spaceflight travel on inflammation and endothelial activation in human endothelial cells (ECs) is not yet established. In addition, the expression of these biomarkers in revived live ECs recovered from a spaceflight travel has not been reported so far. Endothelial activation is preventable. One of the major preventive strategies is the usage of antioxidants. Tocotrienols (TCTs) is a more potent antioxidant than tocopherol (TOC). However, the role of Tocotrienol enriched mixed fraction (TEMF) and pure TCT isomers as a potential potent antiatherosclerotic agent in human ECs compared to pure α-TOC is not well established. The anti-atherosclerotic mechanism of TCTs is also unclear. The objectives of this study were to investigate (i) the effects of spaceflight travel on the protein and gene expression of inflammation and endothelial activation, nuclear factor kappa B (NFκB) and endothelial nitric oxide synthase (eNOS) in human ECs compared to ground controls, (ii) the protein and gene expression of inflammation and endothelial activation, NFκB, signal transducer and activator of transcription-3 (STAT-3) and eNOS in revived live human ECs compared to matched controls (iii) the effects of TEMF, pure TCT isomers, and α-TOC on inflammation, endothelial activation, monocytes binding activity, NFκB and eNOS, and (iv) the most potent pure TCT isomers on the inhibition of the inflammation, endothelial activation, monocytes binding activity, NFκB and eNOS biomarkers in lipopolysaccharides (LPS) stimulated human ECs. The culture medium and ECs from post-spaceflight, revived and corresponding controls were collected and measured for protein and gene expression of cytokines (IL-6 and TNF-α), adhesion molecules (ICAM-1, VCAM-1 and e-selectin), NFκB and/or STAT-3 and eNOS. Human umbilical vein endothelial cells (HUVECs) were incubated with various concentrations of TEMF, pure TCT isomers and α-TOC (0.3-10 μM) together with, lipopolysaccharides (LPS) for 16 hours. Culture medium and cells were collected and measured for the protein and gene expression of cytokines, adhesion molecules, NFκB and eNOS. The immediate post-spaceflight cells showed enhanced expression of cytokine (IL-6), adhesion molecules (ICAM-1 and VCAM-1) and NFκB compared to ground controls. Following post spaceflight, the revived cells were shown to have increased expression of IL-6, ICAM-1 and STAT-3. TEMF and pure TCT isomers reduce IL-6, ICAM-1, VCAM-1, e-selectin, monocytes binding activity, NFκB and induce eNOS expression. Area under the analysis revealed that pure TCT, particularly γ- and δ- isomers have better reduction of inflammation and endothelial activation and greater eNOS increment than TEMF. Delta (δ)-TCT is the most potent TCT isomers in terms of as an atheroprotective agent. Spaceflight travel leads to enhanced inflammation and endothelial activation and these remain elevated even after 3 months post spaceflight travel. This study provided a better understanding on the modulation of inflammation and endothelial activation associated with space travel and may direct future studies in the prevention of atherosclerosis in space travel. TEMF and pure TCT isomers exhibit anti-atherosclerotic properties with great potential as atheroprotective agents. The possible pathway for its anti-atherosclerotic activity is through the NFκB deactivation. α-TOC has inhibitory effects on the antiatherosclerotic properties of TCTs in TEMF.

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Name :
Richard Muhammad Johari James

Title
Modulation Of The Amyloidogenic Pathway By A Novel B-Secretase Inhibitor (F70hab16) From Malaysian Endophyte *Cytospora Rhizophorae*, In Murine Models For Alzheimer's DiseasE

Faculty :
Pharmacy

Supervisor :
Prof. Dato' Dr. Abu Bakar ABdul Majeed (MS)
Prof. Dr. Jean Frederic Faizal Weber (CS)
Associate Prof. Dr. Kalavathy Ramasamy (CS)

Alzheimer's disease (AD) is the most common form of dementia. Until recently, AD is managed by relieving the cognitive symptoms without addressing one of the purportedly fundamental causes of the disease which is the formation of the amyloid plaques. The deposition and aggregation of β-amyloid are key events in the onset, progression and pathogenesis of AD. Thus one of the emerging strategies in treating AD is to inhibit the enzyme responsible for the formation of amyloid plaques, which is β-site amyloid cleaving enzyme (BACE-1). Endophytes are currently viewed as an outstanding source of bioactive natural products and may provide BACE-1 inhibitors as potential drug candidates for the treatment of AD. A novel bioactive compound, F70HAB16 was successfully isolated from a local endophytic strain and was found to inhibit the BACE-1 enzyme *in vitro* (IC50=13 μM). Oral treatment with 5 mg/kg of F70HAB16 for 14 days in scopolamine-induced memory deficit mice model was found to restore memory impairment caused by scopolamine in the radial arm maze and Morris water maze (MWM) tasks. The same treatment was found to improve spatial memory and learning in MWM tasks in a transgenic mice model of AD (B6.129TG) carrying the human APP-Swedish mutation (K670N/M671L). Analysis of the blood plasma and brain tissue of the transgenic mice revealed that the expression of amyloidogenic proteins decreased following treatment with the BACE- 1 inhibitor. Oxidative stress may play a significant but yet undefined role in the development of AD. It was found that the administration of 5 mg/kg of the F70HAB16 reduced the lipid peroxidation index and restored the antioxidant activities of catalase, superoxide dismutase, glutathione reductase and glutathione in the brain tissue of the scopolamine-induced mice model. The treatment with 5 mg/kg of F70HAB16 also redressed the level of nitric oxide in the scopolamine-induced mice. Hence F70HAB16 may prove to be beneficial in the treatment of AD by alleviating the oxidative stress associated with this disease. Furthermore, F70HAB16 also demonstrated neuroprotective properties on the cholinergic system of the scopolamine-induced mice. Finally, metabolomics study of the blood plasma revealed that F70HAB16 down-regulated sphingolipids such as dihydrosphingosine, phytosphingosine and C16-sphinganin. These metabolites were recently proposed as biomarkers for AD since they were found to be up-regulated in the blood plasma of AD patients.

16

Name :
Samira Nuri Ben Said

Title
An Analysis Of The Evolutions Of The Decorative Elements: Case Study The Seven Dwellings In Ghadames Old City

Faculty :
Art & Design

Supervisor :
Associate Prof. Dr.Khatijah Sanusi (MS)

The Old City of Ghadames in Libya, which is today a major tourist attraction, has some old dwellings that contain intricate and meaningful ornamental art. This thesis seeks to investigate these artistic works and decipher their symbolic meanings. This is because, to the modern generation, even of artists and craftsmen, these meanings are lost and these generations-old artefacts are viewed merely as beautiful visual art. This research seeks to solve this problem and the main objectives are (a) to analyse the roots of the selected traditional decorative motifs in the built environment in Ghadames old city of Libya; (b) to uncover the symbolic meanings of these decorative elements found in the architecture in Ghadames old city; and (c) to provide a deeper understanding of the evolution of traditional decorative elements, and symbols found in selected buildings in Ghadames old city in Libya. Towards this end, the researcher investigated a wide range of such art in various countries of the region to determine the history and influence of early colonial presence by various countries that has left this creative artistic legacy in the Old City of Ghadames. Within the framework of the study, the historical background of Ghadames"s art motifs in

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architecture and the decorative units are related to various factors including the natural environment and socio-cultural background. The focus is on seven private dwellings from the 16th through 20th centuries. The ornamental art is analyzed and discussed in the context of their historical time and today"s meaning and usage and includes motifs such as the eight-point star, solar motifs, Tree of Life, triangles, jagged lines, rosette or Flower of Life, among many others. The researcher"s investigation of such ornamental art in other countries of the region reveals the many similarities in art, culture and history and presents a vast panoramic view of the wealth of historical endeavors that have impacted the lives and lifestyles of Libyans as well as the peoples of the regional countries who have been similarly touched by their past. This study provides a glimpse of the many religious beliefs and cultural superstitions of not only the people of Ghadames but also of much of the Arab world and allows for better understanding of their socio-cultural commonalities.

17

Name :
Zurina Bt Adnan

Title
Relationship Between Human Resource Management Practices And Organizational Performance: The Moderating Role Of Interfirm Collaboration And Environment Of Malaysian Research And Development (R&D) Organizations

Faculty :
Administrative Science & Policy Studies

Supervisor :
Prof. Dr. Hazman Shah Vijayan Abdullah (MS)

Associate Prof. Dr. Jasmine Ahmad (CS)

Since 1996, the Research and Development (R&D) sector in Malaysia has received greater policy attention than before. Despite fiscal and non-fiscal incentives provided to support the growth of this sector, the level of R&D measured in terms of R&D outputs (i.e. number of patent) is still dismal which is mirrored in the overall performance of local R&D companies. Many studies have investigated factors which influence the performance of organizations. The present study attempts to examine the relationship between human resource management (HRM) practices and organizational performance of R&D firms based on contingency theory and resource based view. The moderating role of interfirm collaboration and environment on the relationship between HRM practices and organizational performance are also studied. Organizational performance was measured in terms of profitability. The data for the study were obtained from survey responses from 64 R&D companies. Results of EFA and CFA confirmed the 4 dimensions of HRM practices: participation, reward, training and development, and teamwork practices. Regression results showed participation and reward practices have positive and significant relation with organizational performance while training and development practice has negative relation with organizational performance. There is no significant relationship between teamwork practice and organizational performance. Results also indicated that only collaboration in manufacturing significantly moderated the relationship between some of the HRM practices and organizational performance. Other types of interfirm collaborations did not show any moderating roles on the aforesaid relationships. Also, the present study found that environment was not a moderator in the relationship between HRM practices and organizational performance. Overall, the findings of the present study provide partial support of Contingency Theory and RBV. Theoretical contributions and managerial implications of the study as well as suggestions for future research were discussed.

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Name :
Faridah Bt Jaafar

Title
A Study Of Interpersonal Conflict And Gender In Classic And Contemporary Malay Films

Faculty :
Communication & Media Studies

Supervisor :
Prof. Dr. Azizul Halim Yahya (MS)

Conflicts, characterized by mistrust, suspicion, tension and hostility between individuals, groups or even nations are inevitable and inherent in human communication. Forms, causes, duration, outcomes, and effects of the conflicts which may not always be destructive vary but it is up to the disputants' wisdom to deal with them to achieve amicable solutions. This thesis aimed to unveil interpersonal conflicts that disrupt interpersonal communication in the Malay society. It hoped to unveil the disputants, types, motives of conflicts and the way they dealt with the arising issues. The inclusion of gender was to establish an understanding of the types and degree of conflicts between Malay men and women and those of the same gender. It would be worthwhile to also investigate if interracial conflict was apparent. Gender issues in relation to inequality and power inequity were also embodied as part of the study. As real conflicts are difficult to capture, two sets of 19 classic and the contemporary Malay films were deployed. In order for the two conflict taxanomies to be established, Spradley's illustrated in Kalbfleisch (1993) conflict model was consulted as it is important to know what types of conflicts emerge when one is caught in a difficult situation with another party. Some modifications were made to suit the context. Amartya Sen's (2001) gender inequality model was then applied to examine the gender issues. The results include two conflict taxonomies representing the two eras revealing both similarities and differences. The majority of the conflicts portrayed are of the destructive issues and that both the genders do contribute to the disputes in the Malay society; the highest being between family members and Malay men are shown to be the biggest perpetrators of conflicts in interpersonal communication in the two eras. Malay women do face discrimination and inequality although they are bold and daring enough to make themselves heard and they fight for their rights. Interracial conflicts are shown to occur merely at work or professional levels involving more males than females. There is however a gradual move towards constructive conflict resolutions.

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Name :
Halimah @ Nasibah Bt Ahmad

Title
Internal Audit Effectiveness In The Malaysian Local Authorities: Internal Auditors' Perspectives

Faculty :
Accountancy

Supervisor :
Associate Prof. Dr. Rohana Othman (MS)

Dr. Radiah Othman (CS)

Similar to other public sector organizations, local authorities are facing increasing demand for governance and accountability. Hence, it was strongly recommended by various parties that it is necessary for all local authorities to have an effective internal audit function. Internal audit provides assistance to an organization in achieving its objectives through assessing and improving the effectiveness of risk management, control and governance processes. The main objective of this study is to investigate the influence of the internal and external organizational factors on the internal audit effectiveness in the Malaysian local authorities. Specifically, this study was conducted to investigate the influence of the human resource and administrative resource factors on the internal

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audit effectiveness. Moreover, this study also examines the moderating effects of the external factors (coordination with the external auditors and government support) on the internal audit effectiveness. In addressing the objectives of the study, the research framework draws on the integration of perspectives from two theories namely the resource-based theory and the institutional theory. There were 47 local authorities that have established internal audit departments/units when this study was carried out. The data collection process involved a mail survey addressed to all internal auditors in the 47 local authorities. The results of the study indicate that competency and professionalism have positive and significant relationship with the internal audit effectiveness. However, it was found that the quality of work performed, auditees' attitude, top management support and interaction with the audit committee did not have significant influence on the internal audit effectiveness. With regards to the effects of the moderating variables on the relationships between the internal organizational factors and the internal audit effectiveness, results of the study showed that coordination with the external auditors moderated the relationships between professionalism, scope of service and the extent to which audit committee reviews the internal audit results and the internal audit effectiveness. Furthermore, findings of the study demonstrated that government support could moderate the relationships between professionalism, top management support and the extent to which the audit committee has reviewed the internal audit results and the internal audit effectiveness respectively.

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Name :
Hanafiah Bt Hasin

Title
Corporate Turnaround Strategies And Management Accounting Reorientation Of Malaysian Companies

Faculty :
Accountancy

Supervisor :
Prof. Dr. Hjh Normah Omar (MS)
Associate Prof. Dr. Nagarethnam A/P Sithambaram (CS)

Market erosion and maladaptive management decisions have been the causes for declining financial performance of firms at some point of the organizational life cycle, which resulted to a situation of organizational decline. In this context, this research was undertaken to examine the causes of corporate decline and the strategies that could be employed to turnaround the organizations. Exploring the role and utility of management accounting practices as effective organizational strategies to face the challenges of decline is the central focus of the study. A research design of a review of the relevant literature, followed by a quantitative survey among Malaysian companies, which have experienced organizational decline and the case study of the management accounting practices of Lighting Company in Malaysia was adopted to achieve the objectives of the study. Based on the review of the literature the study concludes that internal organizational factors as compared external environmental factors are more responsible for causing organizational decline. The findings from the survey reveal that internal organizational factors like poor management and high cost structure are the main causes of decline. Inadequate control, macroeconomic factor like inflation, product competition and high overhead costs were the other causes found by the study, which may lead organizations to the decline stage. The study concludes that improvements in planning, change in the top management, strengthening financial control and cost cutting and improved marketing strategies are some of the management, cutback and growth and restructuring strategies for turning around a company from the decline stage. Based on the case study of the chosen organization, the study suggests the utility of management accounting practices such as financial planning, standard costing, inventory modeling and capital investment analysis as corporate turnaround strategies.

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Name :
Norazamina Bt Mohamed

Title
Corporate Ethical Governance And Accountability: Malaysian Evidence Of Self-Regulating Ethical Culture

Faculty :
Accountancy

Supervisor :
Associate Prof. Dr. Azizah Bt Abdullah (MS)
Prof. Dr. Hamzah Bin Ismail (CS)

Technology advances, competitive rivals and new innovation have changed the business world. What is not changed is the "profit-oriented" mind. Initially, it was a small scale of "profit-oriented" but then it evolves to immense scale of "profit-oriented" as to achieve as much as possible high financial return. Evidences of businesses collapse indicate the business world is full with "greedy" and "corrupted" businessmen and practitioners. Therefore, it is recommended for the companies to embark on Corporate Ethical Governance and Accountability and to follow Applied Corporate Governance that view corporate governance not only on the aspect of structuring, operating and controlling but also with the purpose to achieve culture based on sound business ethics by concerning all stakeholders and by complying to all related regulations. The companies can carry out the utmost "best practices" of good corporate citizen through ethical culture. The main purposes of this study are to investigate the existence and practices of ethical culture dimensions and company"s spirituality in Malaysian Public Listed Companies and to examine their relationships with employees" ethical behaviour. The ethical leadership, ethical guidelines in COCC/TACOS/EH and stakeholder balance are companies" self-regulating dimensions of ethical culture. In addition, a new variable, company"s spirituality is incorporated to stimulate the company"s culture. Briefly these dimensions describe leaders with role model, good relationship and moral characteristics, documented ethical guidelines as a guidance of expected behaviour and stakeholders considerations in all aspects of business dealings. While company"s spirituality is the intrinsic and extrinsic values held by the company. In achieving the objectives, exploratory design method with instrument development model is applied to explore and to generalize these dimensions. Findings from secondary data, interviews and participant observation are used as the input for questionnaire instrumentation. Exploratory data analysis, factoring analysis (exploratory and confirmatory), correlation analysis and regression analysis (simple, multiple, hierarchical) provide answers for the research objectives, questions and hypotheses. Interestingly, findings in participant observation and questionnaire survey have some similarities. All three ethical culture dimensions existed and are correlated to each other. Either individually or in combination of two, they do correlate positively with employees" ethical behaviour. All have strong relationship with employees" ethical behaviour except for ethical guidelines in COCC/TACOS/EH with moderate relationship. Stakeholder balance is more significant as its combination with other ethical culture dimensions show high variance in predicting the employees" ethical behaviour. Combination between ethical leadership and ethical guidelines in COCC/TACOS/EH is significant but the lowest in predicting the employees" ethical behaviour. Only ethical leadership and stakeholder balance are significant to explain employees" ethical behaviour when combined all three ethical culture dimensions. Though company"s spirituality does not moderate the relationship between ethical culture dimensions and employees" ethical behaviour, it is a significant predictor of employees" ethical behaviour at all level of combination (individual or combination of two or three ethical culture dimensions) with better predicting percentage. Thus, recognizing company"s spirituality as part of ethical culture will improve organizational culture and its ethical performance. To conclude, the measurable items of ethical culture dimensions and company"s spirituality are practical for Malaysian companies" internal assessment and for national ethical identity. Therefore, commitment of companies towards ethical culture is necessary to enhance corporate ethical governance and accountability.

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Name :
Affiaine Bt Ahmad

Title
Assessing The Relationship Between Risk Assessment Practices, Risk Control Practices, Quality Risk Management And Construction Project Performance: An Empirical Study In Malaysian Construction Industry

Faculty :
Business Management

Supervisor :
Prof. Dr. Hajjah Zuriah Abdul Rahman (MS)

This study focuses on the relationship between the risk assessment practices (RAP), risk control practices (RCP), quality risk management (QRM) and construction project performance (CPP). This study is basically a measurement centers around the implementation of the project risk management (PRM) that includes the processes concerned with identifying, analyzing, and responding to project risk. Survey data gathered from 264 projects in G7 grade of contractors in Malaysia was used to assessing the relationships between the stated variables. The analysis were performed using rigorous statistical analysis of SPSS version 16 and AMOS program for structural equation modeling (SEM) techniques. Results show that RAP is observed to have a positive relationship on QRM, but no direct relationship on CPP. RCP has direct positive relationship to both QRM and CPP. Whereas QRM has a positive relationship on CPP. It fully mediates the relationship between RAP and CPP and partially mediates the relationship between RCP and CPP. RAP and RCP are positively correlated. RAP influence the choice of measures; and RCP encourage implementation of RAP. The study contributes to better understanding of implementation of risk management in project. This holds practical and managerial implications to increase the understanding of project risk management and its related performance measurement. In nutshell this study provide useful insights to project managers seeking to improve performance in their construction projects as well as that of the chains they belong to. Thus, the results of this study can make a good addition among the consultants to in-house management training material on construction project management and project risk management.

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Name :
Hatta Bin Hj Safwan

Title
The Contribution Of Board Of Directors' Competency, Commitment, Integrity, And Accountability To The Timely Submission Of The Annual Financial Report Of Agricultural Co-Operative Societies In The State Of Perak And The Moderating Effect Of Office Support And Document Handling

Faculty :
Business Management

Supervisor :
Associate Prof. Dr. Abdul Malek Bin Tambi (MS)
Associate Prof. Dr. Hajah Kalsom Bt. Hj Salleh (CS)

The post-mortem on the National Co-operative Policy 2002-2010 had highlighted, among others, the following weaknesses: low entrepreneurship skills, lack of understanding among members of co-operatives, and lack of professional management. In 1999, 58.8% (97 out of 165) agricultural co-operatives in Perak failed to submit their audited financial report on time as required by the Co-operative Society Act 1993 (Act 503) and Regulations. The targeted key performance indicators (KPI) for the Core Strategic V of National Cooperative Policy 2011 – 2020 requires that at least 90% of the co-operatives have audited annual financial report and 90% of the co-operatives conduct the Annual General Meeting (AGM). This study, which involves the Agricultural Co-operative Societies in Perak, aims to examine the relationship between educational level and training attained with the competency of BODs in ensuring timely submission of financial reporting. A series of tests were carried out to determine the relationship of BODs' competency, commitment, integrity and accountability with timely submission of financial reporting. Additionally, the study attempts to find out whether organizational support and document handling system moderate the relationship between independent and dependent variables. The findings of the study reveal that there is a relationship between educational level and training attained with BODs' competency. There are evidences that show only commitment, integrity and accountability have a relationship with timely submission of financial reporting. There are also findings that indicate the existence of a congruent relationship between commitment, integrity and accountability of BODs, with office support and document handling which serve as moderators. Therefore, establishing appropriate level of commitment, integrity and accountability with sufficient office support and proper document handling system is pertinent to timely submission of financial reporting.

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Name :
Md Khairu Amin Ismail

Title
Modelling Stock Selection In Malaysia Based On Data Envelopment Analysis (Dea)

Faculty :
Business Management

Supervisor :
Prof. Dr. Norhana Salamudin (MS)

Associate Prof. Dr. Nik Muhammad Naziman Abd Rahman (CS)

Dr. Badrul Hisham Kamaruddin (CS)

Stock selection has been a crucial puzzle to investors and abundant empirical works have looked at this issue. Nevertheless, there is very limited empirical evidence that employs DEA in stock selection. Therefore, the main purpose of the study is to apply DEA models on stock selection of Malaysian stocks. The scope of the study incorporates all firms of the five sectors of Bursa Malaysia Main Market, which are consumer, industrial, property, plantation, and trading & services. Two DEA models, technical-efficiency and super-efficiency, are utilized in modeling the DEA stock selection in Malaysia. Stock selection takes place during various economic conditions, specifically sideway-trend, upward-trend and downward-trend, covering from 1998 to 2005. The ex-post period of portfolio performance is evaluated based on 12-month (short-term) and 36-month (long-term) holding periods. The empirical findings show that, during sideway-trend selection, on average, both the DEA super-efficiency and technical-efficiency portfolios produce significantly positive abnormal returns over the long-term. However, during upward-trend selection, on average, the DEA superefficiency portfolios exhibit significantly negative abnormal returns for both shortterm and long-term periods. During downward-trend selection, the DEA superefficiency portfolios show significantly negative abnormal returns over the long-term. The present study contributes to the literature by furnishing new empirical evidence on DEA stock selection literature as well as on the emerging market literature. Furthermore, it is also able to contribute to firms and policy makers as well. Overall, pertaining to the present findings, it is rendered that the DEA portfolios outperform over the long-term holding period particularly when the selection took place during side-way trend. This empirical finding suggests that the DEA models can be applied in Malaysia during side-way trend as a tool for helping investors in their stock selection.

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Name :
Mazzini Bt Muda

Title
Modelling The Effects Of Perceived Credibility On Consumers' Attitudes And Purchase Intention: Empirical Evidence From Celebrity Entrepreneur Endorser Advertisement

Faculty :
Business Management

Supervisor :
Associate Prof. Dr. Rosidah Bt Musa (MS)

Dr. Lennora Putit (CS)

The use of celebrities as endorser of product in advertisements is a very popular strategy in marketing communications. Empirical evidences from western samples justify the hiring of celebrities in advertisements. While the strategy has spread across other countries around the world, there is a lack of studies done to determine the effectiveness of this strategy in other markets especially the Asian markets. Moreover, a new phenomenon has emerged where celebrities become entrepreneurs by starting ventures and endorsing their own brand in advertisement. As the strategy becomes more prevalent across many media, there is a need to assess the value added by celebrities in advertisements. In this regard, the credibility of the celebrity as the source in the communication process becomes the primary focus of this study. The main objective of this study was to determine the effects of three aspects of credibility in celebrity entrepreneur endorser advertisement on advertising effectiveness. Source Credibility Theory, Hierarchy of Effects Models and Tripartite Attitude Theory were employed as theoretical foundations for developing the present conceptual model. More significantly, this study investigated the perceived credibility of the company that sponsors the advertisement and the credibility of the advertising message in addition to the credibility of the celebrity entrepreneur endorser on advertising effectiveness as antecedents. The three traditional variables to measure advertising effectiveness were attitude toward the advertisement, attitude toward the brand and purchase intention. The methodology adopted for the study was survey method using quota sampling technique. A printed, real celebrity entrepreneur endorsed advertisement was attached to the questionnaire as the stimulus. The celebrity selected was Dato' Siti Nurhaliza and her brand of skincare product, SimplySiti, based on a pretest conducted with 30 respondents. The drop-and-collect data collection technique utilized produced 542 usable questionnaires. Using structural equation modeling,

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the data analyzed provides the empirical findings for the thesis. The results from hypothesis testing show that nine hypothesized links were supported and three were not supported. With some minor modification, a plausible model that has a statistical and explanatory power for interpretation of results was confidently established. The findings from this study could offer several major contributions to the marketing and advertising theory as well as marketing communications practitioners. Firstly, it identified celebrity decorum as the key determinant of celebrity entrepreneur endorser credibility. Secondly, all the three aspects of credibility related to the celebrity, company and advertisement message, had a direct effect on attitude toward the advertisement and attitude toward the brand. However, their impact on purchase intention was indirect and mediated by attitude toward the advertisement or attitude toward the brand or both. Additionally, both attitude constructs had a positive and significant effect on purchase intention for brand of skincare products endorsed by a celebrity entrepreneur with brand attitude appears to be the key determinant of purchase intention. The findings from this study form part of the strategic recommendations to marketing communicators in the face of advertising/media clutter and competition. Apart from providing empirical results to understand Malaysian advertising industry and celebrity culture, this study's findings also established an empirical foundation for future research.

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Name :
Rozita Bt Naina Mohamed

Title
Modelling The Predictors And Outcomes Of Brand Experience: Evidence From The Chained Fast Food Brand

Faculty :
Business Management

Supervisor :

Associate Prof. Dr. Rosidah Musa (MS)

Associate Prof. Dr. Faizah Hj Abd Rahim (CS)

Associate Prof. Dr. Norzaidi Mohd Daud (CS)

In today's overcrowded and highly competitive marketplace, 'Brand Experience' (BE) can be the most privileged tool for differentiation. Customer's feeling, emotion and interactions will contribute to the overall perception of the brand experience. Undoubtedly, it is critical to gain insights into the key drivers of 'brand experience' and subsequently ascertain its outcomes in order to design effective marketing strategies for market growth and perhaps business sustainability. The principal aim was to develop an integrative novelty model of brand experience and examine the predictors and outcomes of brand experiences of the four most prominent fast food brand share in Malaysia namely, Mc Donald's, Kentucky Fried Chicken, Marrybrown and A & W. The study applies SOR Model (Mehrabian-Russell, 1974), and other related branding models to a sample of 450 adult respondents who reside in chosen urban areas in Malaysia. The study has used a survey approach with self-administered questionnaire distributed in restaurants, offices and homes. Structural equation modelling was utilised to test the hypothesised relationships among the constructs, as postulated in the model. The measure employed in this study were rigorously assessed and purified initially via item analysis and exploratory factor analysis and subsequently refined by confirmatory factor analysis. It is reasonable to claim that they have adequately met the unidimensionality, validity and reliability criteria applied. Nine of the hypothesized links were supported and three rejected. Result of hypothesis model acceptable fit was CMIN/DF=3.45, RMSEA=0.074, GFI=0.931, CFI=0.958 and IFI=0.959. Ultimately, the study's primary goal of developing an integrative model that has statistical and explanatory power, which could permit interpretation of results confidently, was achieved. Hence, the current investigation unequivocally illuminates several key contributions to the marketing theory, chained fast food industry practitioners and government bodies. Firstly, it exemplifies that 'Product Quality' is the key driver of the predictor's of brand experience. Secondly, service quality and store image are not significant predictors of customers' brand experience with the chained fast food brand. Thirdly, the findings suggest that brand experience is not significant predictor of customer's commitment towards chained fast food brand. Finally, the current investigation confirms that trust was the most influential predictor on resonance and commitment is also revealed to be a significant predictor of resonance, but of a smaller magnitude compared to trust. Discussions of the results are provided along with contributions for the fast food industry and government and suggestions for future research.

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Title
Related And Unrelated Diversification Strategy On Performance

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Diversification strategy has been debated in the fields of strategic management and finance. Inconclusive evidences pertaining to the effect of diversification strategy and debt on performance prevail in developed countries. Some studies suggest doing empirical research in developing countries to search for fresh evidence to validate those claims. This study examines the effect of diversification and debt usage on performance. Multiple proxies of performance are used namely market, economic, risk adjusted and accounting measurements in order to select the best proxy to explain the relationship among variables. The method deployed is panel data analysis on a sample of 76 Malaysian firms from various industries for the period of 1994 to 2007. These firms were then classified into 32 related firms and 44 unrelated firms based on type of diversification adopted. Independent variables such as cash flow, capital expenditure, liquidity and size were employed to provide robust evidence pertaining to the relationship between diversification, debt and performance. In addition to using the whole sample, the study also divides it into two periods: pre- and post-crisis. In determining the relationship among variables, multiple regressions were used. The results for all samples do not support the view that debt can be used to enhance performance once the unrelated diversification strategy is implemented. Similarly, debt also is not a factor that can be used to enhance performance in related diversified firms. The results remain consistent for the pre- and post-crisis periods where no significant relationship exists between diversification strategy and performance. The evidence suggests that debt clearly has a negative impact on performance. Therefore, firms should put extra caution in using debt as their financing choice. Apart from that, firms should also monitor other factors that may have a significant impact on performance such as cash flow. Future studies should explore international diversification strategy to investigate whether debt could enhance performance once unrelated strategy has lowered firm's business risk.

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Name :
Abdul Raheem Jasim Mohamed

Title
Exploring Revisit Intention Behaviour Among Tourists: Empirical Evidence From United Arab Emirates Tourism Industry

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Tourism has become such an important sector of the economy that the Department of Tourism and Commerce (DTCM) of the United Arab Emirates (UAE) taking the lead to spearhead the promotion of the UAE as an attractive, competitive and memorable tourist destination. The total tourist experience which refers to a multi-faceted exposure during a tourist's actual visitation to the UAE is argued to be a strong predictor of his or her revisit intention.As tourism image of the UAE is formed from different sources, it is plausible to suggest that a tourist is most likely to form a more complex image of the UAEas a result of either favourable or unfavourable experience.It goes without saying total tourist experience, the tourism image and tourist responses in respect to their satisfaction, commitment and loyalty is

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instrumental to their propensity to indulge themselves in word-of-mouth recommendation to their friends and relatives. What is more important is their behavioural intention specifically, their revisit intention which is best nurtured during their vacation in the UAE.This study is therefore empirically examining the antecedents of revisit intention within the context of total tourists experience, tourism images and tourist responses. It is structured according to a quantitative investigation on tourists who checked-in to a hotel and who stayed for a minimum of 3 days. Fifteen International hotels located at three Emirates namely Dubai, Abu Dhabi and Fujairah were chosen for data collection. With 413 respondentsthe data analyses were conducted by a process of multivariate analysis using structural equation modelling (SEM) via AMOS (Analysis of Moment Structures) software package Version 18.0. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed to validate the scales. Three measurement models and an overall measurement model were generated and tested in compliancewith a stringent purification process for the models.The results of the structural modellingprovide evidence that core product, tourist commitment and tourist loyalty are significantly related to revisit intention whereas tourist commitment and core product are two important predictors of tourist loyalty. Core product is a strong proxy for tourist satisfaction and tourist commitment.Hence, core product emerged as the most influential experiential element that players should be very concerned with. In addition, environmental turbulence was found to moderate the relationship between tourist loyalties and revisit intention.

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Title
The Development Of Functional Requirements For The Management Of Electronic Court Records At The Malaysian Court Of Apppeal

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Technological change has always been a challenge to archivists, record practitioners, and IT personnel. The management of physical records fails to be regulated in the electronic environment as information systems fail to capture the necessary information needed and to function for long-term preservation. In the legal environment, the scope of legislation is referred to as its jurisdiction and, if not clear, can create difficulties for record managers and archivists to manage the court records. Regrettably, based on the preliminary investigation, there are no comprehensive policies or procedures for managing electronic court records in the Superior Court of Malaysia. Therefore, this study was undertaken with the aim to develop functional requirements for the management of electronic court records in the Malaysian Court of Appeal. This study only covers the Court of Appeal since the preliminary investigations revealed that the Court of Appeal is the most critical court in implementing the electronic system and it is most appropriate. The development of the functional requirements was based on three objectives: a) to identify and analyze various international and national best practices of functional requirements for electronic records management and functional standards for court; b) to investigate the current practices of the records management system in the Court of Appeal; and c) to evaluate the applicability of functional requirements developed on the practices of records management system in the Court of Appeal. This study was conducted using single-case design method involving qualitative approach i.e. content analysis, semi-structured interviews, and focus group discussions. In accomplishing the aim and objectives of the study, the research strategy was overall appropriate. In summary, the functional requirements developed are not only meant to assist in designing related system but also to assess the capability of software packages that is currently in place. The documented functional requirements could well be used for identifying missing functional components of the system, appraising and auditing the court records. The functional requirements could also be used as an input to re-examine and re-engineer existing business processes, thereby contributing to increased efficiency in court operations.

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