

(WCASET-18)



# 07<sup>th</sup> World Conference on Applied Science Engineering and Technology

## WCASET - 18

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## **Editorial:**

We cordially invite you to attend the **7<sup>th</sup> World Conference on Applied Science Engineering and Technology (WCASET - 18)** which will be held at **Malaysia** on **January 5<sup>th</sup>-6<sup>th</sup>, 2018**. The main objective of **WCASET** is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since October 2017, the Organizing Committees have received more than 112 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 29 papers were included to the proceedings of **WCASET - 2018**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **WCASET 2018**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.



**Editor-In-Chief**  
**Dr. Nalini Chidambaram**  
**Professor**  
**Bharth University**

## **Acknowledgement**

IFERP is hosting the 7<sup>th</sup> ***World Conference on Applied Science Engineering and Technology*** this year in month of January. The main objective of WCASET is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attain this conference.



**Er. R. B. Satpathy**  
**Secretary**  
**Institute for Engineering Research and Publication(IFERP)**

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**Malaysia**

**5<sup>th</sup> – 6<sup>th</sup> January, 2018**

**ABSTRACTS**

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# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **IoT-Healthcare Monitoring System Using SoC Platform**

**Lim Sheng Keong.**, School of Electronic and Electrical Engineering, Universiti Sains, Malaysia

**Z.Abdul Halim.**, School of Electronic and Electrical Engineering, Universiti Sains, Malaysia

### ***Abstract:--***

In this study, a system consists of a prototyping of an embedded healthcare monitoring system which is capable to measure ECG, blood pressure, pulse rate and body temperature is proposed on DE1-SoC platform. The IoT-framework is included where the real-time data are stored at IBM Bluemix cloud platform through the Node-RED. Web GUI is created using http GET and POST to display the measurements and advice from doctor through Internet. LM35 temperature sensor, ECG sensor module (AD8232) and ASDX series pressure transducer are used and interfaced to Altera DE1 SoC platform. For testing purpose, ten readings are collected and compared to commercialized tools which are IT-903 to measure temperature and HEM-7120 to measure blood pressure and pulse rate. The accuracy for temperature measurement, pulse rate measurement, Systolic pressure measurement and diastolic pressure measurement are 99.18%, 99.43%, 96.53% and 95.10% respectively. The time required for a sample data to successfully stored in cloud is 1.5 millisecond using 100Mbps of Internet speed. Generally, the measurements from the system have accuracy over 95%. As a conclusion, the functionality of the healthcare system in the study is proven and it is possible to provide better healthcare service to patients.

### ***Index Terms:--***

Embedded healthcare monitoring system, IoT

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **An analysis of Mongolian telecommunication sector situation and it's consumer perception**

**OYUNTUGULDUR Gan-Unur.**, Da Yeh University, International Business Management and Business Administration Department

**Bayartsetseg Badralt.**, Da Yeh University, International Business Management and Business Administration Department

**Tamiraa Munkhbat.**, Da Yeh University, International Business Management and Business Administration Department

**Gombosuren Nyam-Osor.**, Da Yeh University, International Business Management and Business Administration Department

**Enkh-Och Zolbayar.**, Da Yeh University, International Business Management and Business Administration Department

### ***Abstract:--***

Globally, the Telecommunication area is a fast-changing apple with latest innovations continuously in the works. The Telecommunication Area in Mongolia is no different. It is active and continuously adapting to new technologies and to the accretion customer demands. Although the bazaar is saturated with account to accession of new consumers, the ambit lies in accretion the bazaar allotment by accretion the account provided to the consumers. At this stage, the bazaar baton is assertively by the akin of account superior and amalgamation offered to the consumers. This account superior is delivered to the consumers by the account providers who are able to do this with the technology and advice of Telecommunication vendors. This constitutes the all-encompassing archetypal of the Telecom aliment chain.

### ***Keywords:--***

Market situation, Telecommunication

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **On-screen Swipe Keyboard Using Gaze-based Method for Disabled People**

**Morokot Cheat.,** Chulalongkorn University

**Manop Wongsaisuwan.,** Chulalongkorn University

### ***Abstract:--***

The group of disabled people have limitation in quality of life in everyday activity. Since handicapped people cannot use the computer like usual people, using eye movement for user-to-computer communication becomes an assistive technology for human. Eye tracking is used as an input to help disabled people to communicate with the computer. This research aims to develop on-screen keyboard which can interact with eye gaze using dwell-time and dwell-free method instead of using fingers. It will be a benefit to handicapped people to have a chance to type words quickly and easily by themselves. To predict intended words which users would like to type, Levenshien algorithm is used to calculate distance between scan-path words and words in database to find higher score. The highest score is considered as intended words that users intend to type. To improve score ranking, scoring criteria include distance, word frequency, and stored words that users used to type. However, scanning gaze path will be inaccurate if we scan wrong for the first letter because users will hit other keys unintentionally during saccade for intended letter. Thus, this research includes dwell-time for the first letter to make sure that users activate right letter.



# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

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## **Crash Analysis of Aircraft Fuselage under Belly Landing**

**J.S. MOHAMED ALI.,** Department of Mechanical Engineering, Kulliyah of Engineering, International Islamic University Malaysia.

**M.Y. HASFAREEZA.,** Department of Mechanical Engineering, Kulliyah of Engineering, International Islamic University Malaysia.

### ***Abstract:--***

Belly landing occurs when an aircraft lands without deploying its landing gear due to pilot error or mechanical failure. In the present work crash analysis of the fuselage under such belly landing is studied by numerical simulation using LS-DYNA software. In this study both the effect of sinking speed and the effect of different ground properties on energy absorbing capacity is considered. Fuselage structure was modelled using Solid Works and exported to LS-DYNA to simulate the crash analysis of the fuselage under vertical drop. A vertical drop of fuselage section of Boeing 737 aircraft was simulated at 7m/s and 10m/s and crashed on rigid wall as well as on water. The deformations of fuselage were noted for each case and the energy absorbed by each of the components of the fuselage was evaluated. From the result obtained, it shows that frame and skin plays important roles in absorbing energy under crash.

### ***Keywords:--***

belly landing; fuselage; crash; LS-DYNA; simulation

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Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018

## Poly (lactic-co-glycolic acid) nanoparticles as a Versatile drug delivery system

**Fei Ye**, Functional Materials, Department of Applied Physics, School of Engineering Sciences, KTH Royal Institute of Technology, 164 40 Kista, Stockholm, Sweden

### **Abstract:--**

Poly(lactic-co-glycolic acid) (PLGA), a Food and Drug Administration (FDA)- approved copolymer, has been widely used in constructing therapeutic devices, owing to its biodegradability and biocompatibility. In this paper, we report the investigation of copolymerization, surface modification, nanoparticle (NP) formulation, controlled drug release and bioimaging based on PLGA copolymers and NPs. As a versatile polymer platform, PLGA can be copolymerized with polymer or molecules for a variety of application, such as drug loading/conjugation, targeted delivery, in vivo imaging, or for prolonged biodegradation. Copolymerization of PLGA and other polymers can be realized in a facile way through chemical crosslinking, as well the surface modification of PLGA NPs via functional ligands. Drug delivery formulation using PLGA NPs is performed by two ways, that are physical encapsulation of drugs via microemulsion or chemical conjugation via bonding between the drug and polymer. The surface modification of PLGA NPs for imaging, targeting or delivery has been done either by modifying polymer molecules with ligand before NP formulation or by grafting the ligand onto the NP surface after formulation. And the payload for delivery or targeting has been ranged from anti-cancer drugs to biomolecules such as DNA. Thus, the current study has shown the versatility of PLGA in drug delivery application and is expected to inspire the design and construction of drug delivery system (DDS) for use in a specific scenario.

### **Index Terms:--**

drug delivery, formulation, nanoparticle, PLGA

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

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## **Information Communication Technology (ICT) and Tourism: The Case of Mediterranean Countries**

**Hüseyin Ağır.,** Associate Professor, Department of Economics, Kahramanmaraş Sütçü İmam University, Kahramanmaraş, Turkey

**Ceyhan Can Özcan.,** Assistant Professor, Necmettin Erbakan University, Department of Tourism Management.

**Şaban Nazlıoğlu.,** Associate Professor, Department of Econometrics, Pamukkale University, Denizli, Turkey.

### ***Abstract:--***

The relationship between Information and Communication Technology (ICT) and tourism is defined as electronic tourism or e-tourism. The ICT has provided strategic management of companies linked to the tourism sector and has also revolutionized the operations within the tourism distribution channel, resulting in a reassessment of the actions and positions of tourism stakeholders.

Parallel to the development of the ICT, the Internet has emerged as an excellent platform for communication and sharing information and has facilitated instant access. However, the distribution of tourist information has allowed tourism products to be booked and tourism operators to position themselves in the value chain and to reach far more tourists than traditional channels. In this sense, the role and development of technology in tourism demand and analysis has become negligible.

In this sense, covering the years 1995-2014 study selected selected countries has created a demand model for the Mediterranean. Panel unit root and panel Cointegration tests were examined for econometric model. Findings reveal the existence of causality relation. Also, findings are very important in terms of policy makers.

### ***Keywords:--***

Tourism and ICT, Information-Communication and Tourism, E-Tourism and Technology

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Challenges of Human Capacity Development in Colleges of Education in Nigeria: A Study of Federal College of Education (Technical), Potiskum, Yobe State.**

**Aji, Yakubu Stephen,.** Department of Fine And Applied Arts Education, Federal Colleges of Education (Technical), Potiskum, Yobe State.

### ***Abstract:--***

This paper attempts to identify and explain the challenges facing teacher capacity building and effective teaching and learning with particular reference to the colleges of education in Nigerian context where the teacher education system is facing unprecedented challenges. The study used a survey design where simple random sampling technique was used to select a sample of 100 lecturers of Federal Colleges of Education (T), Potiskum. The instrument for data collection was a questionnaire titled “Challenges of Human Capacity Development Questionnaire (CHCDQ)”. The instrument was a 4-point Likert scale. Cronbach alpha reliability method was used to ascertain the reliability of the instrument and a reliability coefficient of 0.80 was obtained. Data collected were analyzed using descriptive statistics – means, standard deviations, frequencies and percentages. Results of the study revealed that inadequate funding, corruption/examination malpractice, lack of effective monitoring/supervision of teaching and learning, lack of committed teachers, students’ poor attitude towards learning, inadequate facilities and certificate racketeering were identified as the constraints to human capacity development in colleges of education. Based on these findings, it was recommended among other things that the government should adequately fund colleges of education in Nigeria to enhance quality human capacity building and lecturers should be given adequate incentives to motivate them to be committed to the training of students for quality outputs.

### ***Key words: --***

Challenges, Human Capacity, Development, colleges of education, Teacher Education.

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

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## **Synthesis and functionalization of Super Para magnetic Nanoparticle (SPMNP 1.0, SPMNP 2.0 and SPMNP 3.0)**

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**Sri Saran Venkatachalam,** 3Bannari Amman Institute of Technology, Alathukombai Post, Erode District, Sathyamangalam,  
Tamil Nadu

### ***Abstract:--***

Here, we elaborate our patented methodology for synthesis, functionalization and characterization of SuperPara-Magnetic NanoParticle (SPMNP). We have used thermal decomposition method for synthesis of SPMNP 1.0 [1]. Using ligand exchange methodology, we performed further surface functionalization of SPMNP 1.0 into Dimercaptosuccinic acid- functionalized SPMNP (SPMNP 2.0)[2]. Using ligand addition methodology, we added lipid monolayer to SPMNP 1.0 in order to generated lipid functionalized SPMNP 2.0 [3]. Further we synthesized SPMNP 3.0 by coupling maleimide tagged fluorescein to Dimercaptosuccinic acid (DMSA) functionalized SPMNP 2.0 [4]. As a future perspective, we will use SPMNP 2.0 and SPMNP 3.0 for subcellular fractionation [5, 6].

### ***Index Terms :--***

Superparamagnetic Nanoparticle (SPMNP), Phospholipids, Dimercaptosuccinic acid (DMSA), Fluorescent SPMNPs and Subcellular fractionation.

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **An analysis of APU Joint Stock Company's Brand Value**

**Oyuntuguldur Gan-Unur**., Da Yeh University, International Business Management and Business Administration Department.

**Tselmeg Otgonbayar**., Da Yeh University, International Business Management and Business Administration Department.

**Gantugs Ganbaatar**., Da Yeh University, International Business Management and Business Administration Department.

**Onongoo Taivanjargal**., Da Yeh University, International Business Management and Business Administration Department.

**Naran-Orgil Tsedendamba**., Da Yeh University, International Business Management and Business Administration Department.

### ***Abstract:--***

In Mongolia has been developing many type of products such cashmere, leather, milk product, all kind of meat product, alcoholic drink, soda drink and many other type of mining resourcing products. Hereof one of the interesting product has been entering globally market it is soda drink. In Mongolia has 4 main competitors of producing soda drink from APU JSC, MCS-Coca-Cola LLC, Vitafit LLC and Altan Joloo Impex and many other follower's companies has been producing. This research paper focusing on measuring brand image and defining its customer satisfaction.

### ***Keyword:--***

Branding, Brand Image, Brand Image Measurement

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## **An analysis of Gobi corporations marketing strategy and its consumer perception**

**Oyuntuguldur Gan-Unur,** Da Yeh University, International Business Management and Business Administration Department.

**Munkhzaya Narantsetseg,** Da Yeh University, International Business Management and Business Administration Department.

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**Narantsatsral Gankhuyag,** Da Yeh University, International Business Management and Business Administration Department.

### ***Abstract:--***

Every war and every competition have their own strategies. If you cannot define your suitable strategy, you will be listed one of the unsuccessful company. Therefore, every company needs to define good marketing strategy. Our research findings indicate that Gobi corporations' marketing strategy. The Gobi corporation is one of the top cashmere producing company in Mongolia. We collected 311 participations from Mongolian consumers and analyzed by competitive marketing strategy.

### ***Keywords :--***

Marketing strategy, SWOT, PEST, product life cycle

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018

## Antibiotic and Pesticides in Poultry Industry

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### **Abstract:--**

A variety of medicines and chemical substances are used to prevent diseases seen in poultry, to control diseases and to accelerate the development of poultry. These drugs and chemical substances, which play a critical role in poultry health, often cause drug residues in poultry applications due to misapplications. When animal foods containing drug residues are consumed by humans, these residues are passed on to the humans.

In addition to the use of animal medicines, there is a similar situation in agricultural products consumed by animals. For example, pesticide residues used to protect plantations from disease and insect infestation can be transmitted to foods in many ways. The presence of fipronil in eggs that have appeared in Europe over the last few months with the title "Poisonous Eggs" is an example of the problem of pesticide residues. Fipronil, a kind of pesticide used against insects, is an insecticide variety defined as poison in medium scale. As seen in the example of fipronil; residues found in medicinal agricultural products can be transported to the animals and then to the humans by consumption of the animal products containing the residues.

The most common residues in food are antibiotic residues. Responses to antibiotic usage have increased with the discovery of side effects of antibiotics used as growth factors in the poultry industry and the development of resistance in pathogenic bacterial species in poultry. For this reason, the use of antibiotics in poultry feeding was banned in the European Union and in Turkey in 2006.

After this prohibition, researches on feed additives that accelerate natural growth, which can be used as an alternative to antibiotics which are feed additives, have gained speed. For this purpose, intensive studies are made on organic materials which will be alternative to antibiotic usage. In this review, we will focus on these studies and find solutions to the problem of residues.

### **Index Terms:--**

antibiotic, fipronil, pesticide, poultry



# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

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## Relationship between Cholesterol and Diet

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### **Abstract:--**

Cholesterol is a waxy compound that present in human blood. It is both produced in liver and taken from diet. Cholesterol takes part in biosynthesis of vitamin D, bile salts, steroid hormones and cell membranes. Despite its roles in metabolism, in case of high level of cholesterol in blood, it can causes some health problems such as cardiovascular diseases. Cholesterol is found in the blood in two different types, high-density lipoproteins (HDL) and low-density lipoproteins (LDL). LDL is responsible to carry cholesterol from liver to the other organs. Excessive amount of LDL-cholesterol causes to accumulation of cholesterol in artery so it can leads to heart attack and other cardiovascular diseases. Contrary to LDL, HDL transports cholesterol from blood to the liver then it is discarded. It aids to decrease the amount of cholesterol in blood. There are many studies indicate the relationship between diet and cholesterol level. Saturated fatty acids (SFA) and trans fatty acids (TFA) increases the biosynthesis of cholesterol in liver, while monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) decreases the cholesterol level in the blood. According to studies there is no relationship between dietary cholesterol intake and cholesterol level in blood. Main reason of high cholesterol level in blood is due to the high uptake of SFAs and PUFAs. To decrease the cholesterol level people should have vegetables fats, which contains MUFAs and PUFAs, and avoid too much animal fats, which contains SFAs and TFAs in their diet.

### **Index Terms:--**

cardiovascular diseases, cholesterol, diet, HDL, LDL

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

Secured life style behind the investment decision is the true mirror of the Indian financial market: An empirical justification.

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## ***Abstract:--***

Human beings always have a sense of security while taking any decision in the life. This sense of security is just not reflected in their decisions but it is rooted in the life style of Indian customers (including financial product customers) which ultimately build their way of living in the society. Secured life style makes an individual for cautious purchase decision making to ensure the secured return, which hold good for purchase decision of financial products also. In this competitive market environment, there has been growing awareness about financial products and demand for the same is considerably increased. But it is still seen that due to the secured life style characteristics of the investors in India, they prefer mostly the secured financial products.

## ***Keywords:--***

Secured life style characteristics, investment decision making, demographic variables.

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Investigation on the strength and corrosion resistive properties of fly ash blended quarry dust concrete**

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### ***Abstract:--***

Quarry dust which is the residue material obtaining from rock quarry can be utilized as fine aggregate in concrete since the available sand could not meet the intensifying demand of construction industry. The use of Portland cement in concrete has significant greenhouse gas implications and this can be reduced by partial replacement of cement with supplementary cementing material such as fly ash. This study focused on investigating the suitability of quarry dust as a replacing material for river sand and significance of fly ash as partial replacement for cement. The objective of this work is to study the strength and corrosion resistive properties of fly ash blended quarry dust concrete having quarry dust as fine aggregate.. The partial replacement of fly ash was done at the levels of 10% to 50% by weight of cement. In addition to the micro structural properties, the mechanical properties studied were compressive strength, split tensile strength, flexural strength, and bond strength after 7days, 28days, 56days, 90days and 180 days. The resistance to corrosion was evaluated by means of impressed voltage technique in saline medium, rapid chloride penetration test (RCPT), weight loss method and Scanning Electron Microscopic (SEM) analysis. The optimum percentage of replacement has been arrived from the test results.

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018

## Response of Broiler Chickens to Dietary Fibre Source

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### **Abstract:--**

An experiment was conducted to evaluate the performance of broiler chickens fed different fibre sources. Five experimental diets were formulated to contain wheat offal (WO), maize offal (MO) rice offal(RO), sorghum offal (SO) and millet offal (MLO) at 10% (starter) and 15% (finisher) diets represented as T1, T2, T3, T4 and T5 respectively. Three hundred Amor broiler chicks were randomly allotted to the five dietary treatments in a completely randomized design. Each treatment was replicated five times with 12 birds per replicate. The results showed that feed intake was significantly ( $P<0.05$ ) different among treatment groups except weight gain and feed conversion ratio at both starter and finisher phases. T1 (WO) had the highest daily weight gain( 44.93g/bird) and T4 (SO) recorded the lowest (41.38g/bird). Similarly the feed conversion ratio at the overall phase (2.28 -2.47) did not vary among the dietary treatments. Live weight and carcass analysis showed significant ( $P<0.05$ ) difference except dressing percentage. However, most of the organs weight were not affected except liver, pancreas, abdominal fat and large intestine. The economic analysis showed that feed cost per/kg gains was higher (N319.92/kg gain) in T2 (MO) while T1 (WO) recorded the lowest (N289.79/kg gain).It was concluded from the results of the study that wheat offal gave better performance in terms of growth and carcass yield compared to other fibre sources.

### **Keywords:--**

broiler, fibre, wheat offal, maize offal, rice offal, carcass

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Comparative Heat Transfer Analysis in Different Minichannel Heat Sinks**

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**S. A. Khan**, Mechanical Engineering, Faculty of Engineering, IIUM, Kuala Lumpur, Malaysia

### ***Abstract:--***

The present experimental investigation is mainly focused on thermal analysis of different geometry of mini-channel heat sink subjected to flow of water as a fluid under steady state forced convection flow condition. The objective is to determine the effect of flow rate on heat transfer and fluid flow characteristics of rectangular, circular, trapezoidal and square shape mini-channels with hydraulic diameter of 2mm and length 250 mm each with an array of ten numbers of channels. From the present experimental study it is observed that the flow rate has great impact on the heat transfer characteristics. The geometry of mini-channel also plays a vital role on heat transfer and fluid flow behavior. It is also observed that pumping power required for circular geometry of mini-channel is maximum compared to other type of mini-channels and it is minimum for rectangular mini-channels.

### ***Keywords:--***

mini-channel, heat transfer, thermal analysis, pumping power, fluid flow.

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

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## Estimation of Stability derivative of an Oscillating cone in Hypersonic Flow

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**Renita Monis.**, Research Scholar, Department of Mathematics, M.I.T.E, Moodabidri, Karnataka, India

**Asha Crasta.**, Associate Professor, Department of Mathematics, M.I.T.E, Moodabidri, Karnataka, India

**S. A. Khan.**, Professor, Department of Mechanical Engineering, Faculty of Engineering, IIUM, Gombak Campus, Kuala Lumpur, Malaysia

### **Abstract:--**

Formulae for the Stiffness and Damping derivatives are obtained in a closed form in the present context with the assumptions that the gas is non-viscous and perfect, the motion is quasi-steady and quasi-axisymmetric, and the nose semi angle of the cone is such that the Mach number  $M_2$  behind the shock  $M_2 \geq 2.5$ . Results are presented for cone for  $\gamma = 1.4$ , at different Mach numbers and semi angles of the cone. It is observed that the neutral point shifts away from the apex of the cone as semi angle increases. So is the case with the minima of the curves for damping derivative. Also it is seen that an increase in Mach number after 10 marginally contributes to any variations in the values of stiffness and Damping derivative which is in accordance with the Mach number independence Principle. These results are likely to find wide applications in high speed flow problems.

### **Keywords:--**

High Speed Flow, Hypersonic Flow, Oscillating cone, Stiffness derivative

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Predictive modeling of suddenly expanded flow process in the Supersonic Mach number regime using response surface methodology**

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### ***Abstract:--***

The present work uses design of experiments (DOE) technique along with response surface methodology to develop linear models, to establish linear input-output relationships in a suddenly expanded flow process. Mach number (M), nozzle pressure ratio (NPR), area ratio (AR) and length to diameter (L/D) ratio have been considered as the input parameters, which controls the output (i.e. base pressure). Full factorial DOE has been implemented for developing the linear model. Experiments were conducted to measure base pressure by two means i.e. without control (WoC) and with the use of active control (WC). The adequacy of developed models was checked through statistical analysis. Fifteen random test cases were conducted in order to validate the models. It is observed that, both linear regression models for base pressure without and with control are statistically adequate and capable of making accurate predictions.

### ***Keyword:--***

design of experiments, base pressure, Mach number, nozzle pressure ratio, area ratio and length to diameter ratio.

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018

## Estimation of Stability Derivatives of wedges at Supersonic Mach Numbers

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### **Abstract:--**

The present study aims at to determine the stability derivatives of a wedge in pitch with attached shock at different angle of attack in supersonic flow. The stability is obtained for a wedge by using the concept of a piston moving in a cylinder at any arbitrary speed, which is dependent on the Mach number and the wedge semi vertex angle. From the results it is seen that as the semi-vertex angle of the wedge increases, the Stiffness derivative increases linearly and damping derivative first decreases, attains a minima and then increases linearly which results due to the change in pressure field and varying position of center of pressure from leading edge of the wedge. Also as Mach number increases, both Stiffness derivatives and damping derivatives assumes lower values at nose of the wedge. Real gas effects, viscous effects, bluntness of leading edge, and secondary wave effects have not been considered in the present study.

### **Keywords:--**

Angle of attack, Mach number, Stability derivatives, supersonic flow



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*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Computation of Stiffness derivative for an unsteady delta wing with curved leading edges**

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**Aysha Shabana.**, Research Scholar, Department of Mathematics, M.I.T.E, Moodabidri, Karnataka, India

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### ***Abstract:--***

An attempt has been made to derive the expressions for stiffness derivative for a delta wing with curved leading edges for an unsteady high speed flow. It is evident from the figures that stiffness derivative decreases as Mach number increases. It is also seen that as amplitude of half sine wave increases the stiffness derivative also increases. This is an improvement over previous theory as the effect of leeward surface are included in the present work.

### ***Keywords :—***

Unsteady, Hypersonic, Delta wing, curved leading edge

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Investigation on the Prominence of Abrupt Expansion on the Base Pressure of an Axi-Symmetric Body**

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**S. A. Khan.**, Professor, Department of Mechanical Engineering, IIUM, Kuala Lumpur, Malaysia

### ***Abstract:--***

This investigation presents the outcome of the tests conducted to control the base flows at supersonic Mach numbers. Also the efficiency of the flow controllers to govern the pressure in the base region in a rapidly expanded duct has been exercised. Four tiny jets of 1mm diameter are positioned at 90° intervals at a distance of 6.5 mm from the central axis of the main jet. The inertia levels of the abruptly expanded flows are 1.25, 1.3, 1.48, 1.6, 1.8, 2.0, 2.5 and 3.0. These jets are connected by an axi-symmetric circular brass tube whose cross-sectional area was 2.56, 3.24, 4.84 and 6.25 respectively. The L/D ratio of the enlarged duct was varied from 10 to 1 and NPR was varied from 3 to 11. However, the results presented were for Low Length to Diameter ratio, equal to 4. It was found that when the flow was discharged to the ducts of the given area ratios, it remained attached with the duct wall for all the inertia levels and the NPRs tested in the present case. It was found that the expansion level plays a significant role to decide the pressure at the base and its control efficacy. Whenever, the flow is over expanded, an oblique shock is formed at the nozzle lip, which in turn leads to enhancement of the pressure in the base region. The formation of the shock waves, reflection and recombination continued till the pressure becomes atmospheric. It was observed that the flow remains attached even for low length-to-diameter ratio, equal to 4. No adverse effect of back pressure was observed during the test. It was found that the micro jets can serve as controllers for the base pressure.

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## Non-Conflicting Refactorings for Design Smells

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**Zakariya Alaseel.**, Computer Science and Engineering, Oakland University .

**Dae-Kyoo Kim.**, Computer Science and Engineering, Oakland University .

### **Abstract:--**

Refactoring a design is an integral task in an iterative development process to ensure the quality of the software product. However, identifying problem areas (e.g., design smells) within the software design is challenging. Existing tools can help to reduce the difficulty by identifying problem areas and recommending potential solutions. While helpful, these tools do not resolve the problem of selecting which changes to implement. In this paper, we present an approach to address the problem by considering the improvement significance of the changes and the elimination of combinations of changes that conflict with each other. The goal of the approach is to simplify the selection of possible refactoring changes, and thus reducing the efforts required to support the refactoring process during the development process. The presented approach extends existing work by considering change significance and improving the precision of the change conflict detection algorithm in the existing work.

### **Keywords :—**

Design smell, optimization, refactoring

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

*Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018*

## **Effect of Friction Stir Welding on Mechanical properties of Zn-22Al Superplastic Alloy**

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### ***Abstract:--***

Present study discusses the trials of friction stir welding (FSW) on Zn-22Al superplastic alloy. The effect of different process parameters of FSW tool on mechanical behavior of the welded zone has been discussed. The results are discussed in terms of mechanical properties and microstructure observations. A new developed FSW tool which was investigated in our laboratory was used in the experiments to investigate the structural changes of microstructures of the material as well. Results revealed a fine grain structure after FSW within the stir zone.

### ***Index Terms:--***

Friction stir welding, Mechanical properties, Superplastic alloy, Zn-22Al.

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

Malaysia, 5<sup>th</sup> –6<sup>th</sup> January 2018

## Determinants of voluntary adoption of IFRS by Indian Small Capitalisation companies

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**Nameirakpam Chetana**, Senior Research Fellow, Department of Business Administration, Sambalpur University, Odisha, India

### **Abstract:--**

The long felt need for unification of accounting language across countries has led to the propagation of IFRS including IAS. Convergence of the accounting language followed at local or regional level with that of the IFRS has many advantages such as increased access to global capital, harmonization of accounting practices across nations, reaching out to global investors, taking informed decision, mobilising global resources and professionalization of accounting education the world over. Leading economies of the world have volunteered to be the pioneer in embracing the IFRS either through adoption or through convergence. India is one among the pioneers in doing so with its large companies classified as those having a net worth of Rs. 1000 crore (i.e, \$ 224.27 million USD) or more mandated to adopt IFRS with effect from April 1, 2011. This was to be followed by companies with net worth of Rs. 500 crore (i.e, \$ 82.63 million USD ) or more, from April 1, 2016 and the companies with Rs. 250 crore (i.e, \$ 38.31 million USD) or more from April 1, 2017. The rest of the companies are to adopt IFRS voluntarily. Adoption of IFRS is beneficial to every kind of business, large, medium or small including the micro enterprises. The SMALL CAPs (Small Capitalisation companies) in India too are to benefit from IFRS. This paper examines the nature and extent to which SMALL CAPs, i.e, companies with net worth between \$ 15.4 million to \$ 37.5 million have adopted the IFRS in India and to determine the factors which influence adoption of IFRS by the SMALL CAPs on a voluntary basis.

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## Paradoxical Behaviour of Shear Strength of Clay with Nano Materials and Additives

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**S.Narasimha Rao.**, Director, Dredging Corporation of India ( Govt. of India)

### **Abstract:--**

Natural clay size soil particles are bigger than nano particles. Addition of nano particles in the presence of water modifies cohesion ( $c$ ) and angle of internal friction( $\phi$ ) of the clay soil. When organic materials is added the behavior is different. If inorganic material is added the behavior is entirely different. Available research documents show that in a soil sample the cohesion increases and internal friction decreases with increase in clay fraction or percentage. This is normal geotechnical behavior of clay and shear strength. But when organic fibers are added along with inorganic nano ( $\text{SiO}_2$ ) the geotechnical behavior is entirely different. Both cohesion and angle of internal friction show an increasing trend. The normal association and dissociation adjustment between cohesion and angle of internal friction is followed in the presence of water and inorganic natural particles. If organic fibers are mixed geotechnical behavior is entirely different and abnormal. The paradoxical behavior of shear strength of clay (increase in cohesion  $c$  and increase of angle of internal friction  $\phi$ ) is due to unnatural, manufactured nano  $\text{SiO}_2$  and fibres. The slope of the  $c, \phi$  curve for natural soil material is opposite to the slope of soil with artificial additive fibres. The conclusions are: 1. The paradoxical behavior of shear strength of clay is interpreted and explained. 2. In  $c, \phi$  curve the slope is different and opposite to the natural behavior of clay confirms the presence of pollutants like nano  $\text{SiO}_2$  or fibres or any other artificial organic additives. 3. The opposite slope helps to detect and estimate organic pollutants.

### **Key Words:—**

Cohesion, Angle of Internal Friction, Shear Strength of soils, Contaminated Materials, coaxial and non-coaxial strains

# 7<sup>th</sup> World Conference on Applied Science, Engineering and Technology

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## Silica Nanoparticles-Based DNA Biosensor for Dengue Virus Detection Utilizing Metal Salphen Complex Optical DNA Label

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### **Abstract:--**

A new model of optical DNA biosensor has been fabricated based on nanosilica immobilization matrix and transition metal complex synthetic DNA binder, where the optical characteristics of dsDNA were fully exploited by utilizing Schiff base complexes as the DNA intercalating agents. The DNA biosensor was capable in differentiating nucleotide bases up to one base variation, which signifies the sequence specify characteristic and high selectivity of the system. The small substrate dimension provided by the SiO<sub>2</sub>NPs-NH<sub>2</sub> in nanometer size range, promoted high DNA loading capacity for ultrasensitive detection of target DNA strand down to zeptomolar levels. The present study employed 16-mer oligopeptide as the probe specific for dengue serotype 2 detection as it causes more severe disease than do other serotypes in Southeast Asia countries. Due to the square planar geometry and aromatic ring structured characteristics of the metal complex intercalators, they could intercalate between DNA bases via  $\pi$ - $\pi$  stacking interaction, and rendered a yellowish pink hue on the DNA biosensor surface. Reflectometric optimization revealed high selectivity of the nanosilica-based DNA biosensor in the detection of dengue serotype 2 DNA, which capable of discriminating even a single nucleotide mismatch. The optical DNA biosensor demonstrated a linear reflectance response between  $1.0 \times 10^{-15}$  M and  $1.0 \times 10^{-11}$  M cDNA ( $R^2=0.9975$ ) with a fast DNA hybridization time of 30 min and a limit of detectable (LOD) DNA concentration as low as 1 zM. In addition, this biosensor showed high shelf life stability with a 20-day operational duration and reusable for five consecutive DNA testings. The proposed optical DNA biosensor offers biosensing performance far superior to that of previously reported electrochemical DNA biosensor for early diagnosis of dengue infection with respect to dynamic linear range, LOD and response time. The coloured Schiff base metal salphen complex and its DNA binding ability, allows naked-eye detection of target DNA, which has high potential to find practical applications in various clinical diagnostic and environmental monitoring purposes.

### **Key Words:—**

Metal complex intercalator, reflectometric, DNA biosensor, silica nanoparticles.

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

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## **Key Factors Influencing Customer Satisfaction with International Student Recruitment Agencies**

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**Yaxin Ma,** Ph.D. Student at School of Management, Universiti Sains Malaysia, Penang, Malaysia.

### ***Abstract:--***

This paper explores customer satisfaction in education service industry (international students' recruitment agents) in New Zealand. To identify the factors that will increase international students' satisfaction, and find possible methods to retain international students, mixed methods were employed in one international agency. A total of 100 questionnaires were completed and semi-structured interviews were conducted with international students and education consultants. The findings indicate that professional knowledge, service, personalities and communication are key factors that will influence international students' satisfaction. Moreover, establishing high contact with international students is a possible method to retain them. The findings of this study are discussed in relation to international students' satisfaction in the context of education service industry. Recommendation for practice that could enhance the understanding of international students' satisfaction, is also discussed

### ***Key Words:—***

Customer satisfaction, Communication, Service, International students, International agents, Recruiting international students.



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## Simulation Analysis of Wavelength Division Multiplexing For Standard Modulation with Next Generation Data Rate in SMF

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**Sharsad Kara Kuni.,** Faculty of Engineering, University of Nottingham, UK, Malaysia China.

**Md. Moshir Rahman.,** Department of Electrical and Electronic Engineering, University of Asia Pacific, Dhaka, Bangladesh .

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**Mohammad Rokonzaman.,** Department of Electrical and Electronic Engineering, University of Asia Pacific, Dhaka, Bangladesh .

### **Abstract:--**

In this paper, performance of RZ (Return to Zero On-Off Keying) modulation was investigated in WDM (Wavelength Division Multiplexing) based Single Mode Fibre (SMF). The simulation was done by the Industrial Software OptSIM for 40Gbit/s. Three different length of Single Mode Fibre (90 km, 180 km, 270 km) were chosen for 4 and 16 channel WDM and the length of Dispersion Compensated Fibre was fixed accordingly. For each number of channel, fibre span was varied in accordance with the lengths mentioned above. The BER (Bit Error Rate) was estimated for the best as well as the for the worst channel scenario. Analysing '4 Channel WDM' simulation, rapid increase of BER was observed for "RZ-OOK" as it increased from  $10^{-9}$  to  $10^{-8}$ . "RZ-OOK" continued to show poor result as its BER was ranged from  $10^{-6}$  to  $10^{-4}$  for 16 channel. Therefore, it was concluded that for long haul transmission in SMF, RZ showed moderate performance both in 8 and 16 Channel WDM.

### **Key Words:—**

RZ, WDM, SMF, BER

# **7<sup>th</sup> World Conference on Applied Science, Engineering and Technology**

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## **Managing Programming Decisions**

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### ***Abstract:--***

This paper discusses major programming decisions taken by a New York-based tech startup in the earliest stage of development. This US firm designed and built its own artificial intelligence system based on its patented technology. In developing its autonomous expert system, the startup followed some industry practices and principles but deviated from others. Its deliberate decision-making enabled the startup to remain financially stable and sustainable throughout.

### ***Key Words:—***

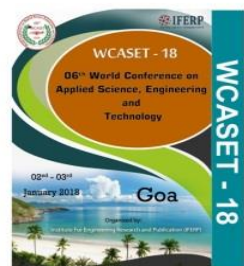
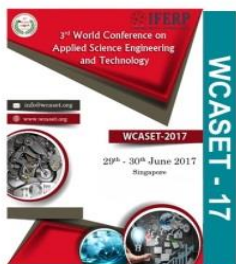
Decision-making, management, tech startup.

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