



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Research Week 2018

RAZAK FACULTY OF TECHNOLOGY AND INFORMATICS

15th-19th October 2018

“Research Innovation towards Industry 4.0”

INNOVATION STRATEGY WORKSHOP

Mohd Khairi Abu Husain

Razak Faculty of Technology and Informatics

Universiti Teknologi Malaysia

Jalan Sultan Yahya Petra

54100 Kuala Lumpur, MALAYSIA

Sharing Session Outline

- 7 Reasons to Participate in Innovation Competitions
- Innovation Competition by MyRAI
- INATEX2018
- Winning Strategies
- Case study: INATEX2017/MTE2018/ITEX2018



Previous Involvement



INATEX2016
18TH INDUSTRIAL ART & TECHNOLOGY EXHIBITION
Elevating Communities Through Innovative R&D



ITEX'18
29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION, MALAYSIA



Certificate of Award

This is to certify that
MOHD KHAIRI ABU HUSAIN
NOOR IRZA MOHD ZAKI
NURUL 'AZIZAH MUKHLAS
FATHIN AFINA ABDULL MUAN
NURFATIN ABDULLAH SHUHAIMY
GHOLAMHOSSIEEN NAJAFIAN
MUHAMMAD BUKHARI JOHARI

Has been awarded the
SILVER AWARD
 For the invention/innovation
AN EFFICIENT TIME SIMULATION TECHNIQUE

At the
 18th Industrial Art and Technology Exhibition (INATEX) 2016
 Dewan Sultan Iskandar, UTM Johor Bahru
 on
 4 to 6 October 2016
 organized by
 Research Management Centre (RMC)




Prof. Datuk Ir. Dr. Wahid bin Omar
 Vice Chancellor
 Universiti Teknologi Malaysia



Certificate of Award

This is to certify that
MOHD KHAIRI ABU HUSAIN
NOOR IRZA MOHD ZAKI
FATHIN AFINA ABDULL MUAN
NURUL 'AZIZAH MUKHLAS
NURUL UYUN AZMAN
EZANIZAM MAT SOOM
SAYYID ZAINAL ABDIN SYED AHMAD

Has been awarded the
SILVER AWARD
 For the invention/innovation
EFFICIENT LOAD COEFFICIENT METHOD FOR OFFSHORE STRUCTURAL RELIABILITY ASSESSMENT

At the
 19th Industrial Art and Technology Exhibition (INATEX) 2017
 Dewan Sultan Iskandar, UTM Johor Bahru
 on
 21st to 23rd November 2017
 organized by
 Research Management Centre (RMC)




Prof. Datuk Ir. Dr. Wahid bin Omar
 Vice Chancellor
 Universiti Teknologi Malaysia



Certificate of Award

This is to certify that
MOHD KHAIRI BIN ABU HUSAIN, NOOR IRZA BINTI MOHD ZAKI, EZANIZAM BIN MAT SOOM, NURUL UYUN BINTI AZMAN, NURUL 'AZIZAH BINTI MUKHLAS, SAYYID ZAINAL ABDIN BIN SYED AHMAD


UNIVERSITI TEKNOLOGI MALAYSIA, MALAYSIA
 has been awarded the
ITEX 2018 GOLD MEDAL
 for the invention
EFFICIENT LOAD COEFFICIENT METHOD FOR STRUCTURAL RELIABILITY ASSESSMENT OF AGEING OFFSHORE PLATFORMS

at the
 29TH INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION 2018
 KUALA LUMPUR, MALAYSIA
 10 – 12 MAY 2018




Academician Emeritus Professor
 Tan Sri Datuk Dr Augustine Ong Soon Heck
 President
 Malaysian Invention and Design Society

SUPPORTED BY


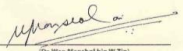



Gold Medal

This Certificate of Award is presented to
Mohd Khairi Abu Husain
Noor Irza Mohd Zaki
Ezanizam Mat Soom
Nurul Uyun Azman
Sayyid Zainal Abidin Syed Ahmad

For the invention/innovation of
Efficient Load Coefficient Method for Structural Reliability Assessment of Ageing Offshore Platforms

Invention & Innovation Awards 2018
 Malaysia Technology Expo 2018
 22 - 24 February 2018
 Kuala Lumpur

(Dr. Wan Mansuh bin W Zin)
 President
 Malaysian Association of Research Scientists

MALAYSIA TECHNOLOGY EXPO 2018
 The Leading International Invention & Innovation Expo



INATEX2017
19TH INDUSTRIAL ART & TECHNOLOGY EXHIBITION
Elevating Communities Through Innovative R&D



MTE 2018
Malaysia Technology Expo
The 17th International Expo on Inventions and Innovations



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Reasons to Participate in Innovation Competitions

Create Awareness for
Your Idea

Sharpen Your Sales Pitch

Prizes Can Boost Your
Business Case



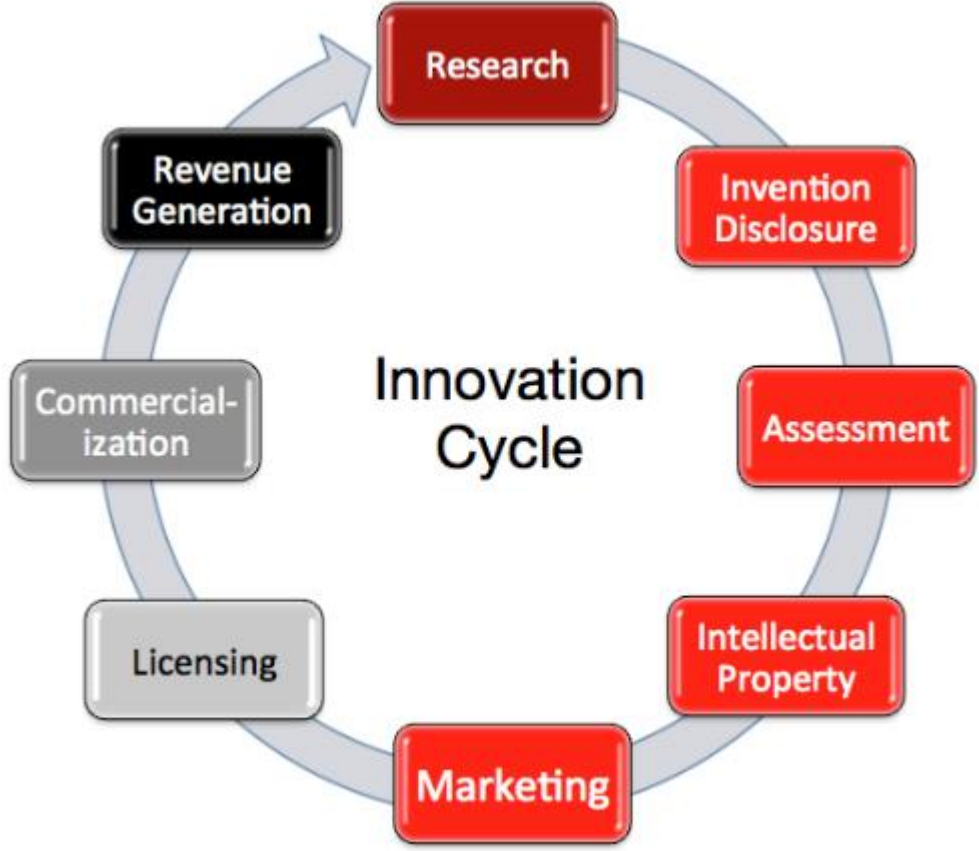
Expert Advice from
Related Stakeholders
and Proof of Concept

Unique Networking
Opportunity

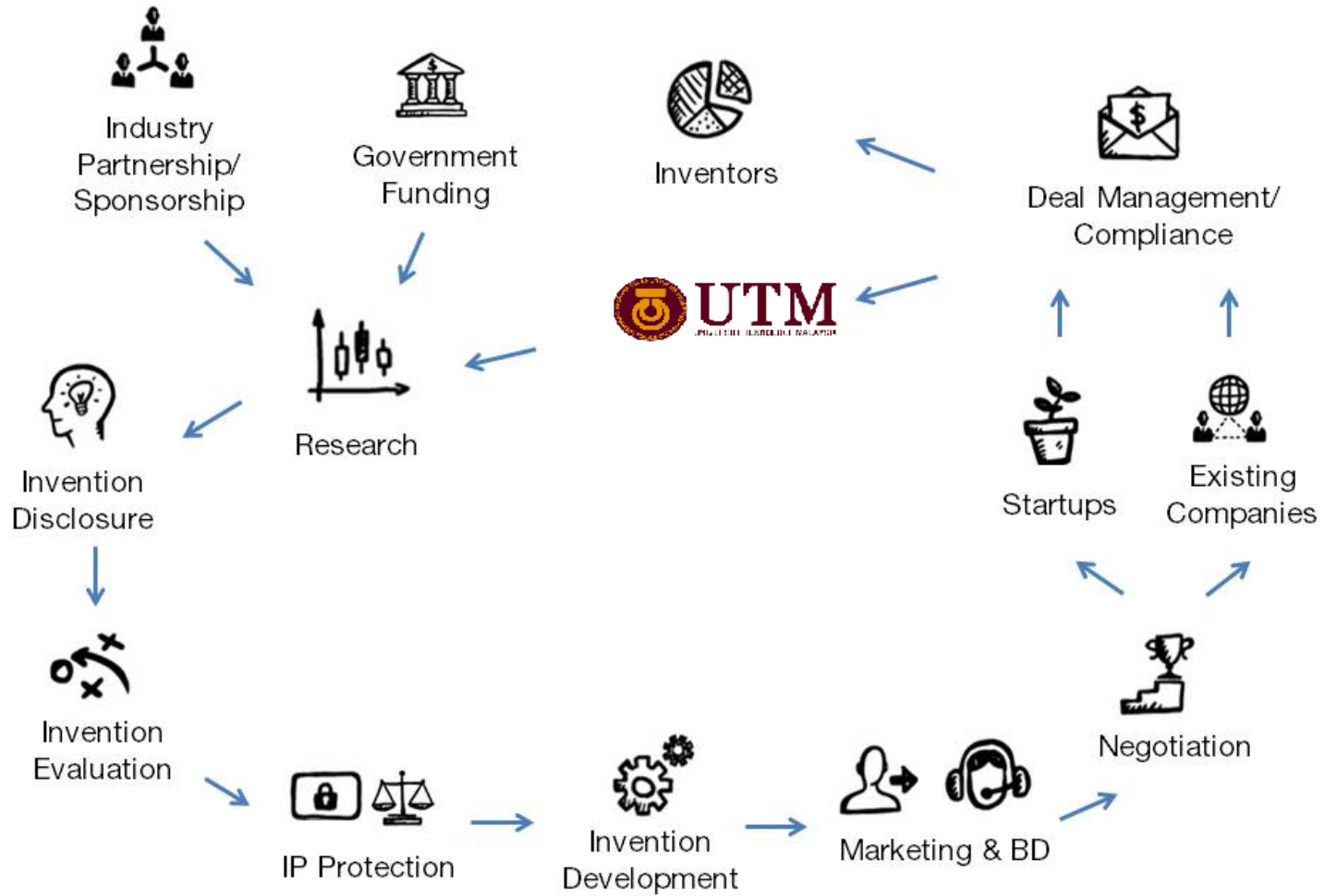
MYRAI / KPI

Prizes and Promotion for
Your Idea

Innovation to commercialisation



From Lab to the Market



List of Innovation Competitions



SIIF
Seoul International Invention Fair



Industrial Art & Technology Exhibition (INATEX)

HISTORY OF INATEX

- Industrial Arts and Technology Exhibition (INATEX) is an R&D exhibition & competition that showcases UTM latest inventions and innovations.
- INATEX was first introduced in 1998 and this year exhibition will be the 20th edition.
- INATEX winners will have the **opportunity to represent the University in various R&D exhibitions and competitions** at National and International levels.



The banner features the UTM logo at the top center, with the text 'UNIVERSITI TEKNOLOGI MALAYSIA' below it. To the left is a small 'inatex 2018' logo with a grid pattern. The main text reads 'INATEX2018' in large blue letters, followed by '20th INDUSTRIAL ART & TECHNOLOGY EXHIBITION' in smaller red letters. Below that is the tagline 'Elevating Communities Through Innovative R&D'. A red banner at the bottom contains the text 'REGISTRATION IS OPEN NOW' in white, '29 - 31 October 2018' in yellow, and 'DEWAN SULTAN ISKANDAR UNIVERSITI TEKNOLOGI MALAYSIA' in yellow and white.

Web & Registration
<http://rmc.utm.my/inatex>

FOR INFORMATION
PLEASE CONTACT:

INATEX 2018 SECRETARIAT
RESEARCH MANAGEMENT CENTRE
Universiti Teknologi Malaysia
Email : inatex@utm.my

Registration
Fee

RM350

Registration Due Date :
4 October 2018

Industrial Art & Technology Exhibition (INATEX)

Objectives

- To **promote the latest innovative inventions, products and technologies** in R&D developed by UTM researchers to the public and industry.
- As a platform for **internal assessment of R&D products for competitions** at National or International level.
- To **identify technology or latest products with potential for commercialization**.
- To provide **exposure for UTM researchers** on the importance of producing quality research with high standard in order to be accepted by consumers and that can be commercialized to generate income to the University.
- To promote a **culture of entrepreneurship** within researchers by providing basic exposure as a first step towards commercialization of research products.
- To promote creativity among UTM researchers through research innovations by combining R&D activities with quality products, the values of aesthetics and ergonomics through the Industrial Art and Design.
- To provide **a platform for interaction and promoting partnership between UTM researchers and industry** for the **creation of wealth** through innovative R&D and to strengthen beneficial networking between academics, public and industry.



INATEX Registration



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

inatex 2018

INATEX2018
20th INDUSTRIAL ART & TECHNOLOGY EXHIBITION

Elevating Communities Through Innovative R&D

REGISTRATION IS OPEN NOW

29 - 31 October 2018

DEWAN SULTAN ISKANDAR
UNIVERSITI TEKNOLOGI MALAYSIA

Web & Registration
<http://rmc.utm.my/inatex>

FOR INFORMATION
PLEASE CONTACT:

INATEX 2018 SECRETARIAT
RESEARCH MANAGEMENT CENTRE
Universiti Teknologi Malaysia
Email : inatex@utm.my

Registration Fee
RM350

Registration Due Date :
4 October 2018

INATEX Term & Conditions

- Participation is **open to all UTM researchers**.
- Maximum THREE(3) invention is allowed for a project leader.
- The invention must be related to a **research project registered with RMC**.
- The invention must be **NEW** (except for products that have been improved/undergone further development) and **IP protected**.
- All participant must produce their own **poster** according to the poster template.
- The products intellectual property must be protected (Patent Granted, Patent Filing, Copyright, Submitted Invention Discloser Form).



INATEX Category of Invention

CATEGORY OF INVENTION

Participation in INATEX products will be divided according to the categories used by the organizers of exhibitions and competitions in R&D at the National and International level as follows:

- A Agriculture, Aquaculture & Environment
- B Art, Design & Creativity
- C Biotechnology, Life Science & Pure Science
- D Disaster Management
- E Education & Human Development
- F Entrepreneurship & Industrial Management
- G Health, Wellness & Well Being
- H Information Communication Technology & Multimedia
- I Manufacturing Technologies

INATEX Evaluation Criteria

EVALUATION CRITERIA

1 **Novelty and inventiveness**

- Novelty of product
- IP Status
- Inventiveness of product @ similar exiting product
- Contribution to New Knowledge/Technology

2 **Usefulness**

- Relevance of the invention in solving the problem(s) concerned
- Contribution of the invention to health, safety, education(s), etc (Sociality's impact)
- Environmental friendliness- (RoHS compliant, recyclable, reusable, renewable, etc.)

3 **Commercial Potentialities**

- Market potential on the invention
- Evidence of market need
- Product comparable or superior to similar products in the market
- Status of the invention– completeness of R&D, prototype close to the final product?
- Business Plan Proposal
- Strategy for commercialization- market strategies or new trend being identified

Academic Recognition

- #### 4
- Publication- Journal (Index or Non Indexed)
 - Impact factor, Magazine, Newspaper and Book or Chapter in a Book
 - Conference attending

5 **Presentation and Demonstration**

- Inventor's knowledge of the invention and related state of the art technology
- Functionality of the model / prototype on show
- Scientific thought/engineering goal

INATEX Evaluation Criteria

SCORING FOR EACH EVALUATION CRITERIA INATEX 2016

1. Degree of Originality and Novelty

Description	Marks
Novel	1-4
Novel and Unique	5-7
Novel, Unique and Protected (Copyright or IP Filing)	8-10

2. Degree of Inventiveness

Description	Marks
Modification – Using existing idea	1-4
New idea – Existing product	5-7
New idea lead to new product	8-10

3. Technology Innovation

Description	Marks
Unable to show based on strong scientific principles	1-5
Based on strong scientific principles	6-10

4. Extent of Utility, Usefulness and Application

Description	Marks
Solve real new problem	1-4
Real world problem and identified approach	5-7
Solve real world problem, identified approach and has society impact	8-10

5. Technology Application

Description	Marks
Relevant to Malaysia context but not significance in field	1-5
Relevant to Malaysia industry, significance knowledge improvement in research field	6-10

6. Commercial Potentialities

Description	Marks
Has market need analysis, but not identify competitor study	1-5
Has market need analysis, identified competitors or similar products	6-10

7. Strategy for Commercialization

Description	Marks
Unclear commercialization strategy, unclear final product	1-5
Has identified strategy for commercialization, close to final product	6-10

8. Potential Industrial Partners

Description	Marks
No partner	1-5
Identified partner	6-10

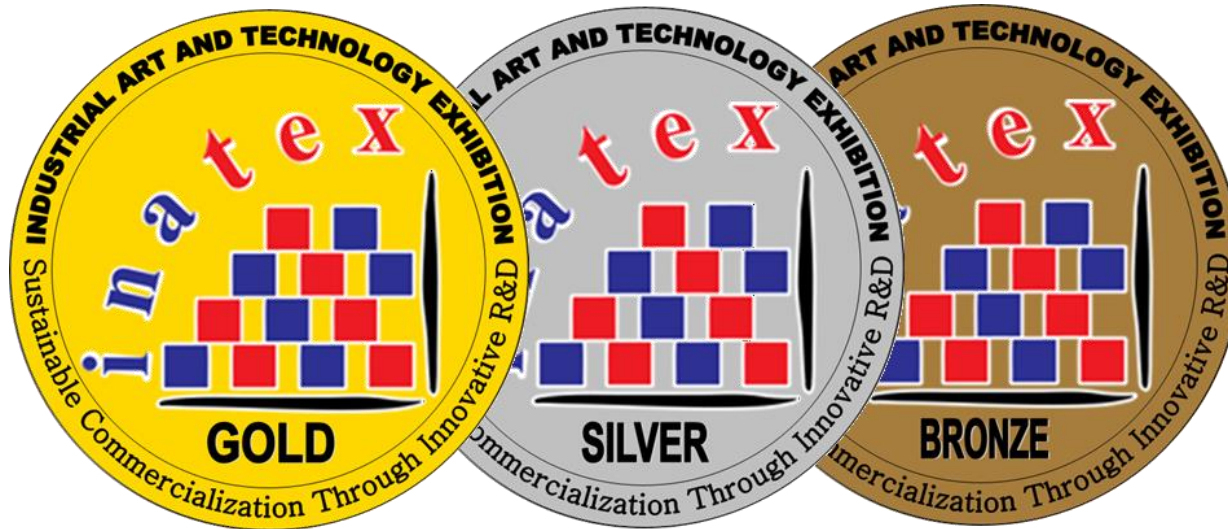
9. Publication

Description	Marks
Non-Index journal	1-4
Index journal	5-7
Impact Factor	8-10

10. Knowledge of the Inventor & Display

Description	Marks
No hands-on or working model	1-5
Well presented, hands-on or working model	6-10

INATEX Prizes and Awards



Inventions will be awarded points for each of the five (5) criteria mentioned in Presentation format . The maximum score is 100%. Medals will be awarded based on the percentage scored.

- Gold 85% and above
- Silver 70% – 84%
- Bronze 60% – 69%

INATEX Prizes and Awards

- 1 Best Of the Best Award (Research Grant) – RM50,000.00 , Trophy and Certificate
- 2 Best Invention Award – Trophy and Certificate
- 3 Vice Chancellor Special Award – Trophy and Certificate
- 4 Deputy Vice-Chancellor (Development) Special Award– Trophy and Certificate
- 5 Gold Award – Medal and Certificate
- 6 Silver Award– Medal and Certificate
- 7 Bronze Award– Medal and Certificate
- 8 Participant – Certificate

INATEX Preparation - Poster

- Researchers must produce their own poster according to the poster template.
- The theme of the poster must follow UTM's branding guideline including logo and tagline.
- Poster size is **A0 size (1189mm x 841mm)**.
- Poster orientation must be in **Portrait** (Width: 841mm & Height: 1189mm).
- Contents must follow the prescribed format
- The main content of the poster must include:
 - **Product photo**
 - **Product features**
 - **Novelty**
 - **Applications**
 - **Environmental friendliness**
 - **Potential market**
- Poster should be printed in English.
- Relevant images must be included.
- **Researcher's photos and details** are located at the bottom of each poster

POSTER FORMAT

Title of Invention/Product <small>(PATENT/ APPLICATION NO.)</small>	
PRODUCT PHOTO:	PRODUCT PHOTO:
PRODUCT FEATURES • • • •	NEEDS • • • • APPROACH • •
NOVELTY • • •	BENEFITS • • •
APPLICATIONS • • •	COMPETITION • •
ENVIRONMENTAL FRIENDLINESS • • •	POTENTIAL MARKET • •
PHOTO OF INVENTOR(S) -PASSPORT SIZE	NAME : FACULTY : RESEARCH ALLIANCE: Universiti Teknologi Malaysia 81310 Johor Bahru TEL (C) : FAX : EMAIL : WEBSITE :

innovative ↔ entrepreneurial ↔ global

INATEX Preparation - Poster

REMINDER : Don't

- Use small font size and shadow effect.
- Use the same background colour as the title and its content.
- Use blurry image of products or researchers.
- Put in descriptions that are too long.



CNT-M3 ADVANCED MEMBRANE MATERIAL FOR CO2 REMOVAL MALAYSIA PENDING PATENT:PI2009 0588, PI2009 0535



1. A CNT mixed matrix composite (CNT-M3) membrane for acid/green house gas removal has been invented through a specialized solution formulation employing nanotechnology to produce membranes with superior separation characteristics.

PRODUCT FEATURES

- (New formulation for the fabrication of CNT/polymer) Enhanced selectivity of > 100% at 0.7% ratio of CNT/polymer
- Robust and able to withstand high pressure up to 30 bar
- Fast diffusion and smooth flow of gases through the hollow structure of CNTs
- Novel modification techniques to enhance interfacial interaction between CNTs and polymer matrix

NOVELTY

- Carbon nanotubes mixed matrix membrane is a new and novel invention developed for enhanced separation properties – new class of membrane materials.
- Able to combine the synergistic effects and properties of the polymer and CNTs resulting in an excellent new membrane material.
- Showing more than 100 % increase in selectivity for CO₂/CH₄ gas separation.

APPLICATION

- Gas separation processes
- CO₂ capture in green-house gases removal
- CO₂ removal from bio-gas or natural gas
- Methanol production and cracking

NEEDS

- Carbon dioxide, which falls into the category of acid gases is commonly found in natural gas streams at levels as high as 80%.
- Robust and efficient membrane material that can deal with increasing CO₂ concentration
- An efficient separation system that competes amine systems which are used frequently but are complex and have high capital, operating, and installation costs, a relatively high fuel cost and potential environmental issues.

APPROACH

A simple yet very practical approach has been designed and implemented in order to achieve the need statements. They are:

- Formulation of polymer solution.
- Development of mixed matrix membrane structure to enhance CO₂ removal by controlling modification and fabrication parameters.

BENEFITS

- Structurally developed CNT-M3 achieved >100% performance improvement compared neat polyimide
- The material developed allows membrane system to be tailored in advanced way to separate other gas impurities.
- Promote greener environment by efficiently removing CO₂ gas through versatile, adaptable, environmentally friendly and easy to operate membrane technology

COMPETITION

- UOP
- MATR
- Nalco
- Air Liquide

POTENTIAL MARKET

The Malaysian gas separation membrane system market in 2010 is estimated to be about 350 million USD (BCC 2010) based on the reserves and acceptance of the technology. The relevant potential industries for membrane-based gas separation include:

- Oil and gas industries
- Petrochemicals
- Chemical process industries
- Water and waste water treatment related industries



NAME	PROF. DR. AHMAD FAUZI ISMAIL GOH PE SEAN SUHAILA MOHD SANIP MOHAMMAD ABDUL KAZIS SAIDIN NG BE CHEER MOHD SOHAIMI ABDULLAH
FACULTY	FACULTY OF PETROLEUM AND RENEWABLE ENERGY ENGINEERING, UNIVERSITI TEKNOLOGI MALAYSIA 81310 UTM JOHOR BAHRU, JOHOR
RESEARCH ALLIANCE	MATERIALS & MANUFACTURING
TEL	+607-5535925
FAX	+607-5535925
EMAIL	AFAZ@UTM.MY
WEBSITE	WWW.UTM.MY/AMTEC

INNOVATIVE • ENTREPRENEURIAL • GLOBAL

INATEX Preparation - Flyer

- Researchers must prepare a **minimum 30 piece of flyer** for every invention.
- The theme of the flyer must follow UTM's branding guideline including logo and tagline.
- Flyer size is **A4 size (210mm x 297mm)**.
- Flyer orientation must be in **Portrait** (Width: 210mm & Height: 297mm).
- Contents must follow the prescribed format
- The main content of the flyer must include:
 - **Product Features**
 - **Originality/Novelty**
 - **Current Problems/ Background (Need)**
 - **Purpose Of Invention/ Product (Approach)**
 - **How This Product Can Help Industry (Benefit)**
 - **Who A Competition For This Product (Competitor)**
 - **Commercial Potentialities**
- Flyer must be in English.
- Relevant images must be included.
- Researcher's photo and detail are located at the bottom back side of each Flyer.

UTM
STANDARDIZED EXTRACTS OF MISAI KUCING LEAVES WITH CONCENTRATED SINENSETIN

PRODUCT FEATURES

- Standardized extracts of Orthostichum stamineum leaves (4-6% of major compounds) (Sinensetin)

ORIGINALITY / NOVELTY

- Unique with 4.5% of Sinensetin from Orthostichum stamineum leaves (in market = 0.2% to 0.5%)

Key Data	Market Value	Production Cost	Commercial Potential
Volume/Weight	RM 1.5 (Retailer Price)	RM 0.5 (Production Cost)	High
Market Value	RM 1.5 (Retailer Price)	RM 0.5 (Production Cost)	High
Production Cost	RM 0.5 (Production Cost)	RM 0.5 (Production Cost)	High
Commercial Potential	High	High	High

ADVANTAGES/ APPLICATIONS

- A top-4 single good isolate selectively efficient, suitable for thermally labile compound, near solvent free and reduced environmental hazard extraction method.

CO₂ → non-toxic, non-flammable, recyclable, low cost

NEEDS

- Market value of herbal industry in Malaysia
- Most manufacturers are in infancy stage (CR1)

APPROACH

- Superiority of Carbon Dioxide Extraction process to obtain standardized extracts which are high valued and more suitable for the export market

PRODUCTS

- Semi-processed
- Unknown/Identifiable
- Semi-finished
- Standardized

EFFECTS

- **LOW FINANCIAL RETURNS!!!** (RM30-50/KG)

ESTIMATED VALUE

MISAI KUCING PRODUCT	ESTIMATED VALUE (RM)	COMMENTS
FRESH LEAVES	1.5000	Low production value
PROTOPHORBIC ACID/FLAVONOIDS EXTRACT	15.0000	High value, suitable for export
STANDARDIZED PURE EXTRACT	2.0000	Standardized, suitable for export
TRIPLE DRIED CRUDE EXTRACT	1.5000	Standardized, suitable for export
SINGLE DRIED CRUDE EXTRACT	1.0000	Standardized, suitable for export
LIQUID EXTRACT	2.0000	Standardized, suitable for export
DRIED POWDER	30.0000	High value, suitable for export
FRESH LEAVES	1.5000	Low production value

POTENTIAL MARKET

- Pharmaceutical Industry
- Food Chemicals
- Nutritional Industry
- Health Industry

BENEFITS

- Low production value
- High value
- Environmental friendly
- Low solvent consumption

RESEARCHER INFORMATION

Name: Prof. Madya Dr. Mohd Azizi Bin Che Yunos
 Prof. Dr. Mohd Nur Hisham
 Prof. Dr. Yusoff Bin Yusoff
 Sahlan Bin Zuhri
 Zuhaili Bin Ibrahim
 Faculty: Faculty of Chemical Engineering
 Universiti Teknologi Malaysia
 81310 Skudai, Johor, Malaysia
 Research Alliance: Bi-technology
 Tel: +607-5515797

INATEX Preparation - Video

- Researchers must prepare **short video (duration 2 to 5 minute)**.
- The main content of the video must include:
 - Inventor Introduction
 - Over View- Current Problems/ Background (Need)
 - Material
 - Step by Step demo
 - Purpose Of Invention/ Product (Approach)
 - How This Product Can Help Industry (Benefit)
 - Who A Competition For This Product (Competition)
 - Commercial Potentialities



INATEX Preparation - Presentation

- One invention will be judged by **3 judges (Industry, Funded, Academic)**.
- Make sure that the **Team Leader** or the person who is going to present is available.
- Presentation is **no more than 15 minutes** with **1 minute introduction, 6 minutes invention explanation (focus to business planning), 2 minutes for conclusion and 6 minutes question and answering** session
- Participants are encouraged to prepare **a simple slide for presentation** purpose.
- For invention that require a **demonstration**, please make sure the invention can be function properly during the judging session.
- For large-scale invention, researchers are encouraged to show a **video demonstration** to show clear functions of invention.
- **The presentation must be guided by judging criteria.**
- Presentation must be in English or Malay.
- **All supporting evidence** must be brought during the judging session:
 - **Business plan or business proposal**
 - **IP document**
 - **Proofs of publication**
 - **Collaboration letters from industry**
 - **Status or commercialization plans**
 - **Report analysis market study**
 - **Other documents that can be support your presentation**

Winning Strategies - Business Plan Basics

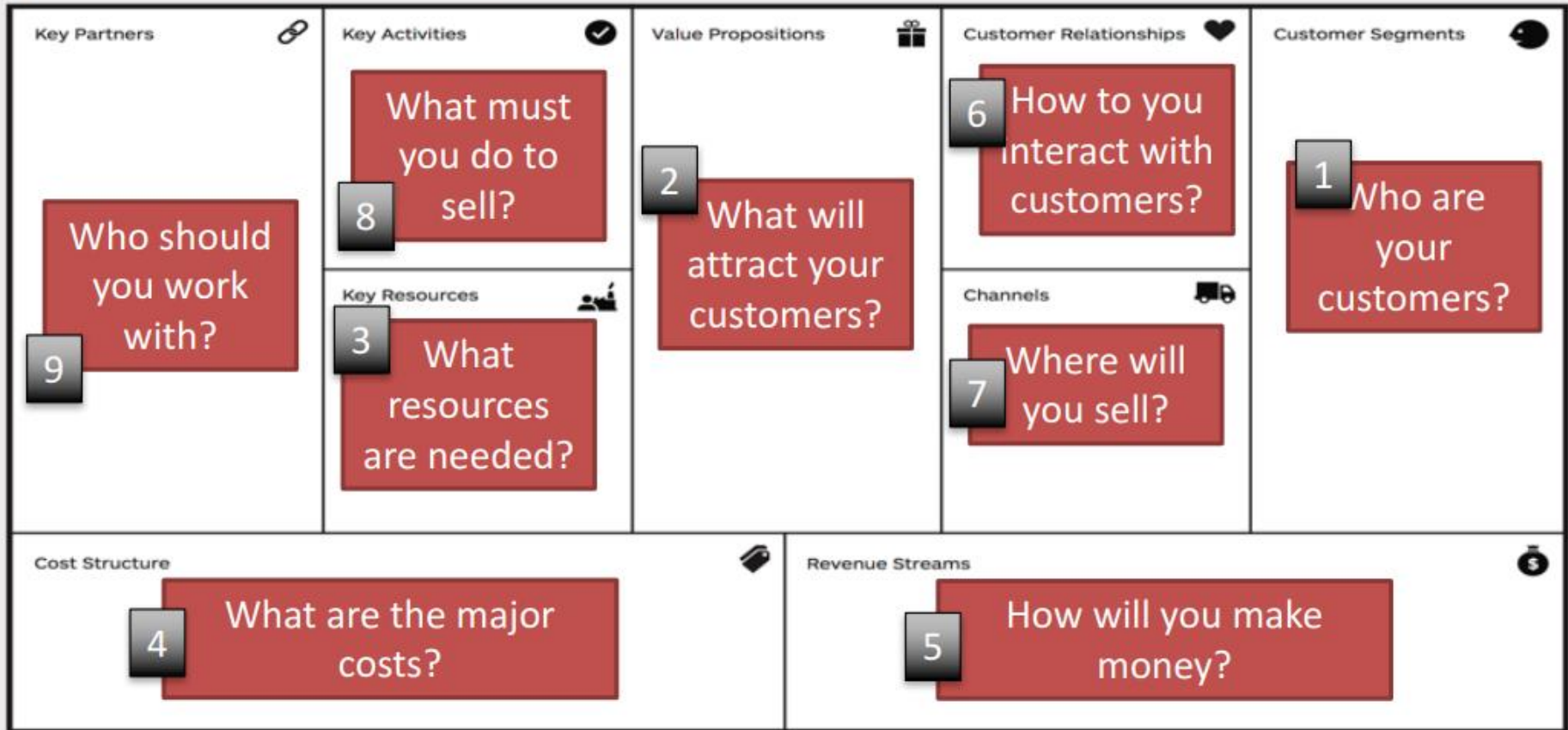
WHAT IS THE STRUCTURE OF A BUSINESS PLAN?

1. Executive Summary
2. Company Description
3. Product/Services
4. Market Analysis
5. Operations/Strategy
6. Management Team
7. Financials



Winning Strategies - Business Model

The Business Model Canvas



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DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

Strategyzer
strategyzer.com

Winning Strategies - Pitching your Business Idea



Winning Strategies - Pitching your Business Idea

5 KEYS TO A SUCCESSFUL PITCH

1. Know who you are pitching to
2. Stick to the time allocated
3. Be passionate
4. Be ready with answers
5. Don't think like a researcher!!

Pitch
your idea



Winning Strategies - Pitching Do and Don't

Do - Pitching critical success

- Get ready as earlier as possible
- Lot's of mock pitching
- Know the competition requirement in detail
- Know their 'language' – be alert to environment
- Be humble – you are a start up – lot's to learn
- Be confident – this is your bread and butter – your passion
- Get support from your team and friends
- Pray



Don't - Pitching critical success

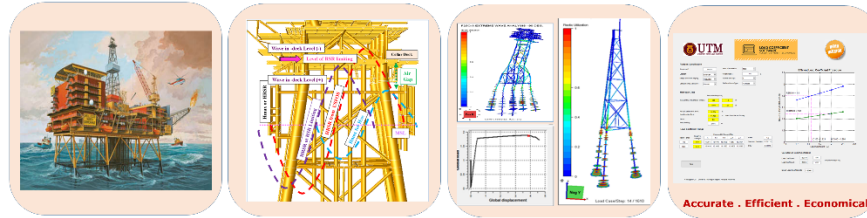
- Be too nervous
- Be over confident
- Panic
- Wearing uncomfortable dress
- Eat/drink too much before

Winning Strategies - Teamwork



Case study: INATEX2017/MTE2018/ITEX2018

Efficient Load Coefficient Method for Structural Reliability Assessment of Aging Offshore Platforms (IP Filing: LY2017003151)



Demand

Probabilistic Model (Limit State)

Non-Linear Simulation

Load Coefficient (α) Determination

PRODUCT FEATURES

- An efficient method to determine the load coefficient (α) value for reliability analysis for fixed offshore structure
- Improvement on the limit state for probabilistic model equation standard parameter
- Not required for on-site offshore wave measurement that will contribute to time spent and high-cost impact
- Potentially be applied to the analysis of new design fixed offshore structures

NOVELTY

- A efficient and reliable offshore structure analysis model
- Accurate prediction of the Probability of Failure (PoF), Return Period (RP) and Reserve Strength Ratio (RSR)
- A cost-effective approach for the load coefficient value estimation
- Provide useful design information using parametric studies

APPLICATIONS

- Reliability analysis for fixed offshore structural systems
- Others structural system for jetty or wharf head for port facilities

APPROACH

- The calculation based on ultimate strength analysis for static non-linear by utilising of ultimate strength for offshore structure (USFOS) Software
- Implement limit state for the probabilistic model equation, where consist of load model (wave) and resistance model (strength)
- Application of Global Ultimate Strength Analysis (GUSA) and Reliability-Based Design and Assessment (RBDA) for determining the probability of failure (POF) and return period (RP) as part of the validation process

NEEDS

- Cost and design optimisation for new and existing oil field development
- Integrity and safety assessment for structural modification
- Ageing and life extension of the offshore structure

BENEFITS

- Offer excellent efficiency of reliability analysis of offshore structure without scarifying accuracy
- Optimum and economical design for all types of offshore structure
- Adequate structural safety of offshore structures especially waves in-deck and air insufficient
- Support detailed re-assessment applied to the management of the structure's safety, integrity analysis and reliability

COMPETITOR

- Metocean contractor for PETRONAS and SHELL such as British Marine Technology (BMT) and FUGRO (Metocean Services)



POTENTIAL MARKET

- Oil and gas industry stakeholders (PETRONAS, SHELL, Technip)
- Ocean renewable energy industry (DCNS, Lockheed Martin, Xenexys)
- Major structural reliability software developer (DNV, Bentley)
- Prestigious research institution (Petronas R&D (Malaysia), KRISO (South Korea) and MARINTEK (Norway))

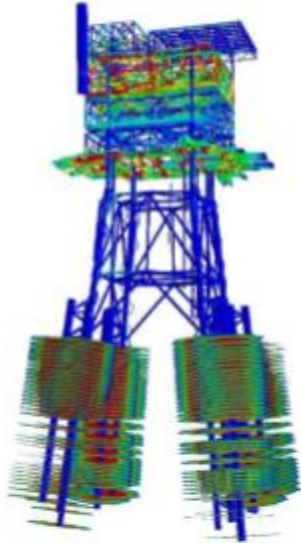


Team Member:
 Dr. Mohd Khairi Abu Husain
 Dr. Noor Irza Mohd Zaki
 Ezanizam Mat Som
 Nurul Uyuz Azman
 Nurul 'Azizah Mukhlas
 Sayyid Zainal Abidin Syed Ahmad

Contact:
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 Universiti Teknologi Malaysia
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 Tel: +60322031385
 Website: <http://razakschool.utm.my/mohdkhairi/>



Case study: INATEX2017/MTE2018/ITEX2018



EFFICIENT LOAD COEFFICIENT METHOD

FOR STRUCTURAL RELIABILITY ASSESSMENT OF
AGEING OFFSHORE PLATFORMS

(IP Filing: LY2017003151)

UTM RAZAK School of Engineering and Advanced Technology

Universiti Teknologi Malaysia

Jalan Sultan Yahya Petra

54100 Kuala Lumpur, MALAYSIA

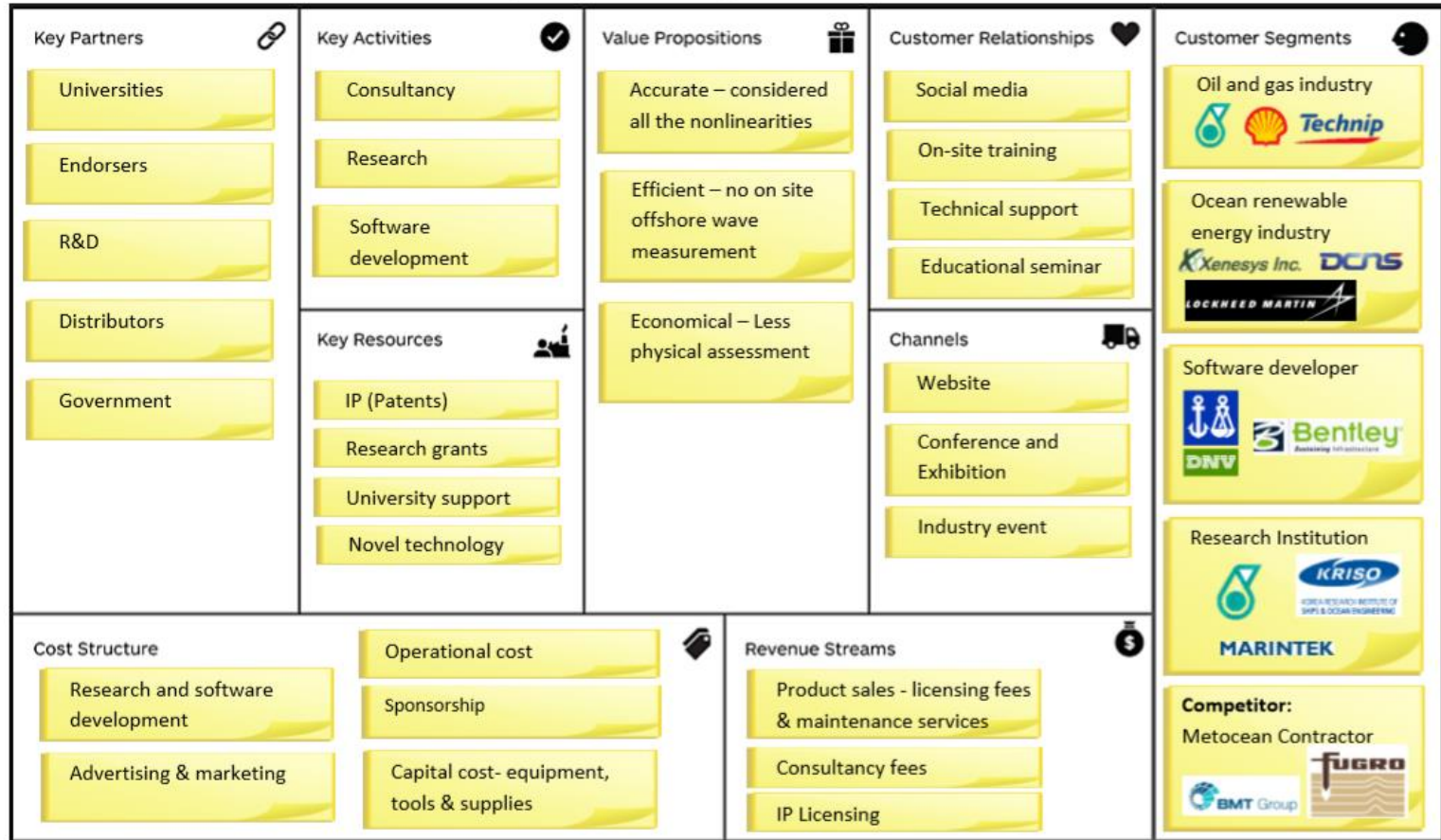


Case study: INATEX2017/MTE2018/ITEX2018



BUSINESS MODEL CANVAS: Efficient Load Coefficient Method for Structural Reliability Assessment of Ageing Offshore Platforms

(IP Filing: LY2017003151)



innovative ◦ entrepreneurial ◦ global

Case study: INATEX2017/MTE2018/ITEX2018




CONFIDENTIAL



**EFFICIENT LOAD COEFFICIENT METHOD FOR
STRUCTURAL RELIABILITY ASSESSMENT OF
AGEING OFFSHORE PLATFORMS**

BUSINESS PLAN AND STRATEGY
(2018 – 2022)

Case study: INATEX2017/MTE2018/ITEX2018

  	Efficient Load Coefficient (α) of Probabilistic Model	DOC NO.	RPT-CX-0001
		REV. CODE	01R
		PAGE	PAGE 1 OF 59



SARAWAK SHELL BERHAD



UNIVERSITI TEKNOLOGI MALAYSIA



TechnipFMC (M) SDN BHD

PROJECT NAME : Developing the Efficient Load Coefficient (α)
: Method for Structural Reliability Assessment
: of Ageing Offshore Platform

DOCUMENT TITLE : Efficient Load Coefficient (α) of Probabilistic
: Model

DOCUMENT NO : RPT-CX-0001

REV CODE	ISSUE DATE	DOC STATUS	PREPARED BY
01R	8-Sep-2017	IFR	Ezanizam Mat Soom (Sarawak Shell Berhad) Dr. Mohd Khairi Abu Husain (Universiti Teknologi Malaysia) Dr. Noor Irza Mohd Zaki (Universiti Teknologi Malaysia) Nurul Uyun Azman (TechnipFMC Miri Office) Nurul 'Azizah Mukhlas (Universiti Teknologi Malaysia) Sayyid Zainal Abidin Syed Ahmad (Universiti Teknologi Malaysia)

Case study: INATEX2017/MTE2018/ITEX2018



PERSONAL & CONFIDENTIAL

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26th October 2017

UTM Razak School of Engineering and Advanced Technology
Universiti Teknologi Malaysia
Jalan Semarak
54100 Kuala Lumpur
Malaysia

Dear Dr. Noor Irza Mohd Zaki,

Subject: Research Collaboration – Universiti Teknologi Malaysia

I would like to express my willingness to serve as a collaborator on your research grant application project entitled **Efficient Load Coefficient Method for Structural Reliability Assessment of Aging Offshore Platforms**. I am familiar with the subject area and will provide scientific input and mentoring to its successful implementation.

Further, in keeping with the mission of Sarawak Shell Berhad to promote and facilitate reliability engineering research and the dissemination of new knowledge, we would supply requested research materials and technical expertise not only to you, but also to other interested and qualified parties for research purposes.

I look forward to working with you on this collaboration.

Sincerely,


Ezanizam Mat Soom
Senior Structural Engineer
Sarawak Shell Berhad
Malaysia
Tel: +6085455290
E-mail: Ezanizam.MatSoom@shell.com



11 November 2017

To whom it may concern,

Reliability Engineering Research Collaboration – Universiti Teknologi Malaysia

I am familiar with Dr. Mohd Khairi Abu Husain research project entitled **Efficient Load Coefficient Method for Structural Reliability Assessment of Aging Offshore Platforms**. I understand TechnipFMC (M) Sdn. Bhd. involvement to be providing archival data, relevant support on reliability engineering simulation and mentoring to its successful implementation.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research study is strictly voluntary and provides confidentiality of research data, as described in the protocol.

Therefore, as a representative of TechnipFMC (M) Sdn. Bhd., I agree that Dr. Mohd Khairi Abu Husain research project may be conducted at our agency.


Sincerely,


Nurul Uyun Azman
Lead of Structural Department
TechnipFMC (M) Sdn. Bhd.
Miri Engineering Office
Lot 1623, Pujut 1A, Jalan Pujut-Lutong,
98000, Miri Sarawak
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